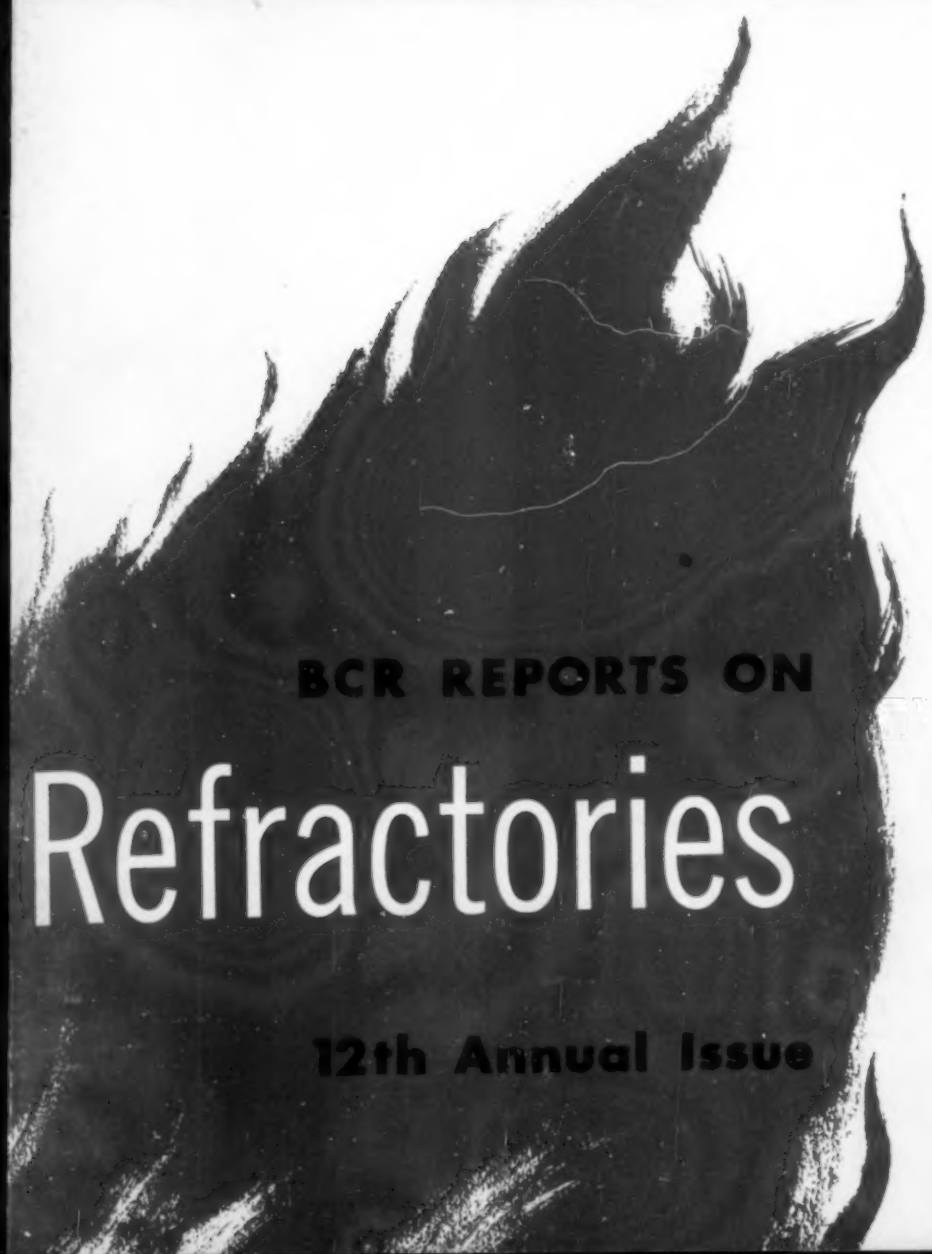
# Brick & Clay Record

January
1957

Brick
Refractories
Structural Tile
Sewer Pipe
Drain Tile
Terra Cotta
Roofing Tile
Clay Aggregate



BCR REPORTS ON

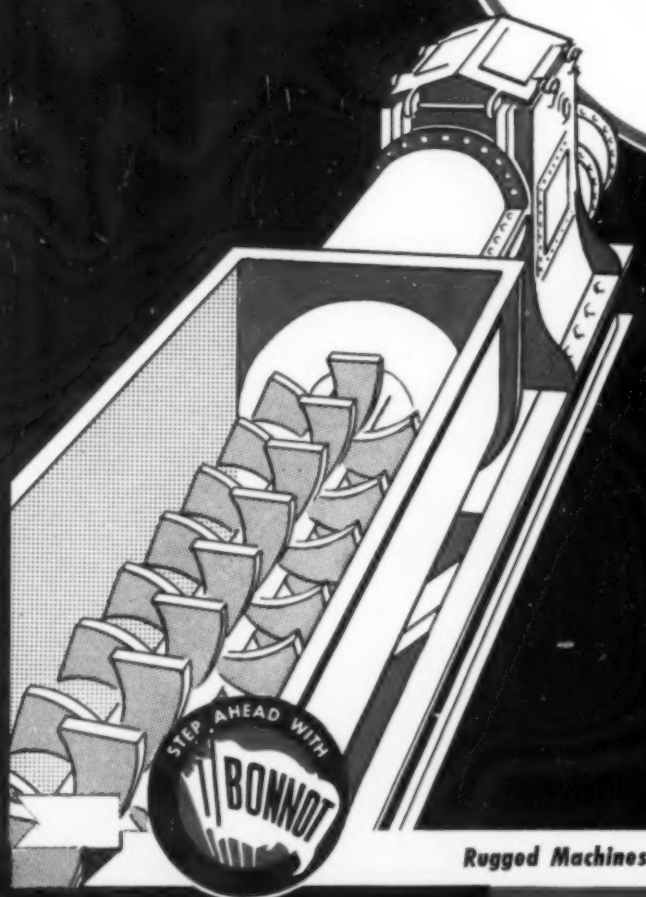
# Refractories

12th Annual Issue

FEATURING
SPECIAL
SECTIONS
ON
REFRACTORIES
IN
CERAMICS
AND
STEEL

plus
all regular
features and
departments

# TARGET.... FOR TODAY AND TOMORROW




Bonnot Machinery — custom-tailored to your raw material and product needs — incorporates nearly "70 years of built-in integrity of performance" that assures *less down time and reduces maintenance expense* . . . . that adds up to *lowest cost per ton of finished product.* Engineering features such as CONSOLIDATED GEARING, yet with separate clutch controls, for pug mills and augers . . . SUPER GEARING AND BEARINGS . . . BEST PUGGING . . . THOROUGH DEAIRING — *all save trouble and improve production.*

And from Bonnot, your inquiry gets the kind of attention so vital when *present and future* SIGHTS must be concentrated on "more and better brick, tile and pipe."

***Rugged Machines for Constant Low Cost Operation — BONNOT'S the Buy***

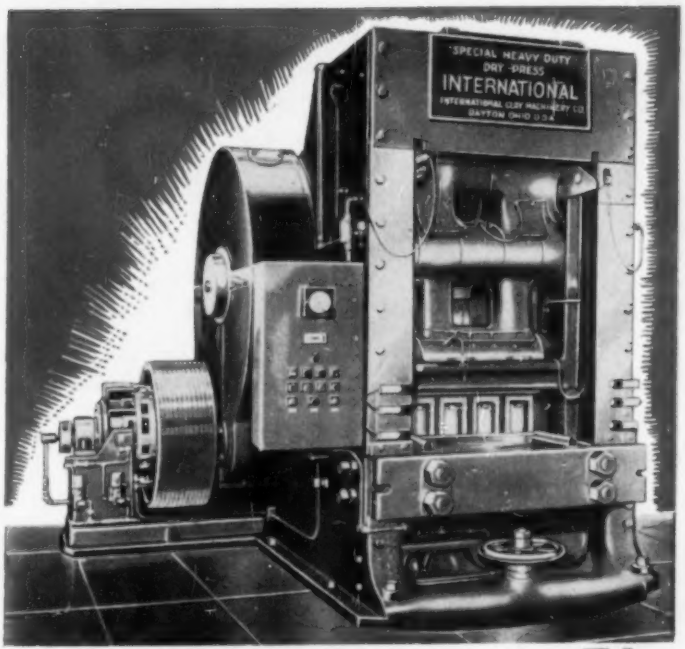
The BONNOT Co.

CANTON 2, OHIO

| | | |
|---|---|---|
| CRUSHERS | CUTTERS | AUGER MACHINES |
| HAMMER MILLS | REPRESSES | VACUUM MACHINES |
| DRY PANS | DIES | SPECIAL EXTRUDERS |
| WET PANS | MIXERS | PUG MILLS |
| GRINDERS | SPECIAL MACHINES TO ORDER | |
| FEEDERS | DIRECT FOUNDRY SERVICE | |

# IT'S HERE!

# Push Button Control!



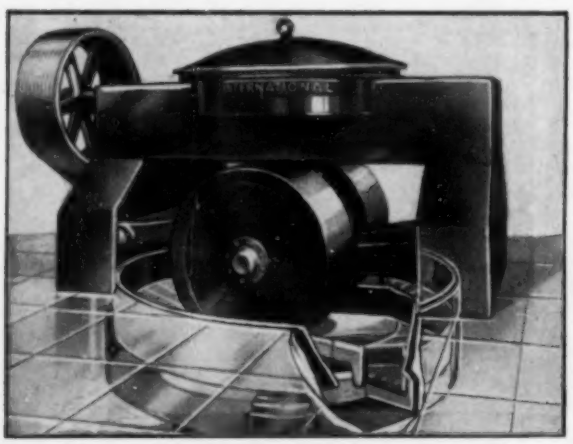

Welded steel frame, steel operating mechanism, which can be arranged with—

Push Button operation and control
Air Clutch with electric pneumatic control
Stroke Counter and visual time recorder
Safety Devices operating from control panel
Electric Eyes—operating from central panel
Centralized Lubricating System
Strain Gauges connected to both bars—not one
Dust tight gear guards, if desired
Control Cabinet electrically wired with solenoid valves operating electric eyes—GATES side bar prssure regulator—stroke counter and time recorder.
Single Stroke or automatic operation

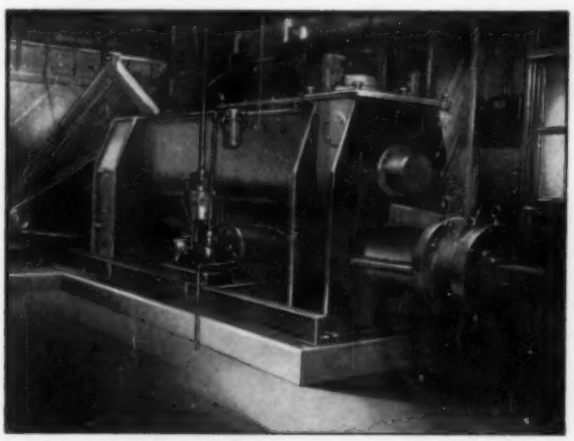
*NOTE: This press can be adapted to making cored brick*

# International's Newly improved SPECIAL HEAVY DUTY DRY PRESS

MEETING TODAY'S DEMAND FOR LOWER COST OPERATION, A SUPERIOR PRODUCT, MINIMUM SUPERVISION . . . ASK FOR SPECIAL BULLETIN,



INTERNATIONAL 10 Ft. GRINDER, (patents pending) with the revolutionary New Slanting Screen Design, offering the World's Highest Grinding Capacity per foot of pan diameter—one example shows a capacity of 43 to 50 tons per hour, operating on "Chagrin" shale through a ⅛" screen. . . . Being Constructed on a new principle of inclined screen plate design, it's capacity is approximately 1½ times capacity of ordinary same size horizontal screen plate pans. —Bulletin 61



INTERNATIONAL HEAVY DUTY DOUBLE DECK AUGER MACHINE, No. 477 and 478, with New Seal Die Design, and pugging under vacuum. Engineered to be practically free of repair and expense, with a reported saving in power cost alone up to 25%. No other similar rated machine ever built can give you a better finished product for less money. 2 MODELS, of Welded steel construction, from 4,000 to 10,000 Standard U.S.A. Brick per hour. Write for detailed information—Bulletin 63.

## INTERNATIONAL CLAY MACHINERY CO.

DIVISION OF INTERNATIONAL ENGINEERING, INC.

DAYTON 1, OHIO

LOS ANGELES—8468 Melrose Place (Fernholtz Mchy. Co.) Olive 3-2360 NEW YORK—15 Park Row WOrth 2-2580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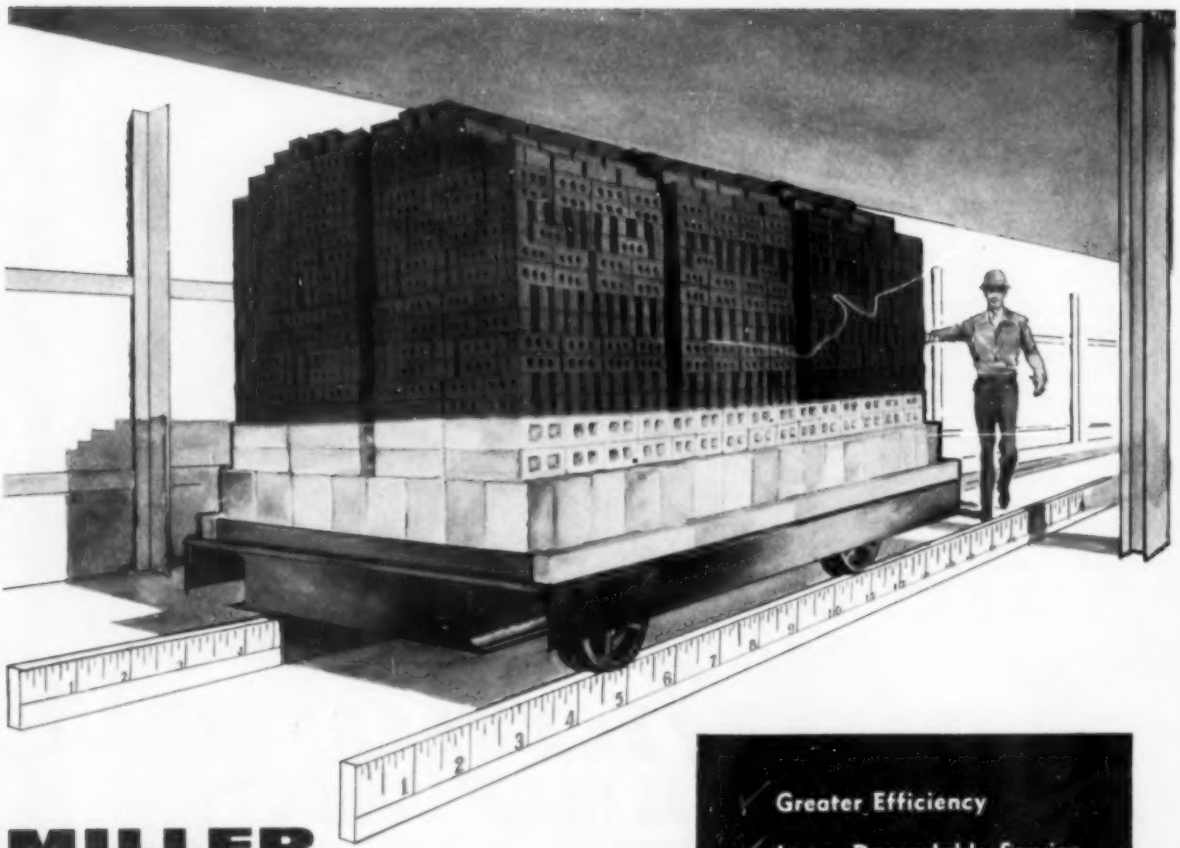

**MILLER**

- ✓ Greater Efficiency
- ✓ Long, Dependable Service
- ✓ Smooth, Easy Maneuvering
- ✓ Heavy-duty Operation

# Kiln Cars Measure Up To Your Specifications!

Put your kiln car requirements on a yardstick scale. Miller-built kiln cars really measure up because they're designed from **your** specifications to fill **your** individual needs.

Miller Equipment Company is the only manufacturer that maintains **complete** tunnel kiln and kiln car facilities. Miller engineers design, build, and service kiln cars for every type of installation, large or small.

Miller kiln cars feature lightweight, yet sturdy, all-welded construction. Equipped with Timken Tapered Roller bearings, 2 units per wheel, Miller cars are easily moved by one man.

Write Miller Equipment Company today! Our engineers will analyze your needs and give you full information and prices, without obligation.

**CROS-FLO TUNNEL KILNS** **CONVEYOR EQUIPMENT**
**HAMMERMILL CRUSHERS** **ENGINEERING SERVICE**

**MILLER EQUIPMENT CO.**

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*Pacific Agent:*
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5028 Alhambra Avenue
Los Angeles 32, California

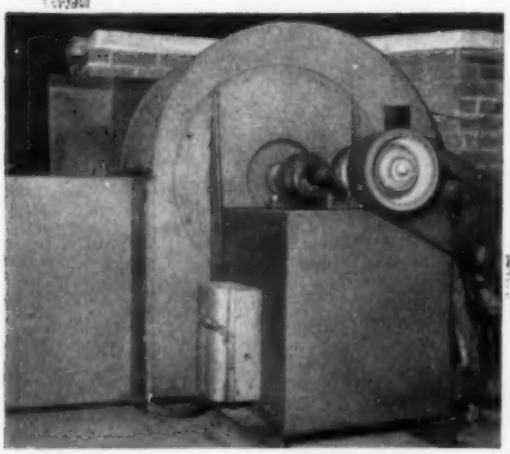
*Southwestern Agent:*
A. K. MOULTON ASSOCIATES
431 Westwood Drive
San Antonio 12, Texas

We would like to say that we are very well pleased with the "Buffalo" fans we are using on our different tunnel kiln installations. The NV propeller fan which Buffalo Forge designed for us for our drier operation, is undoubtedly the best fan of this type we have used.

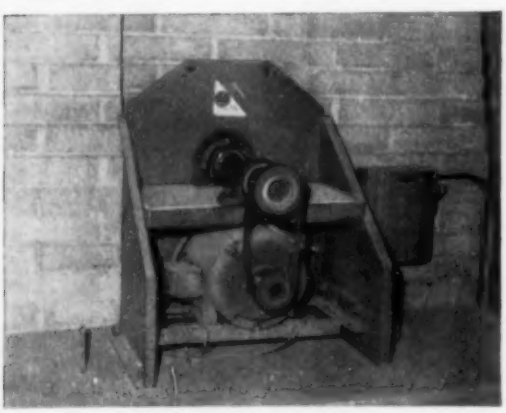
Very truly yours,

THE INTERKILN-SALGO ENGINEERING CO.

E. T. Salgo



*"Buffalo" Type BL Fan moving 14,000 cfm waste heated air from Brickmaster Interkiln Tunnel Car Kiln to dryer.*



*One of 3 "Buffalo" Dryer Recirculating Fans on Interkiln Tunnel Car Kiln. "Buffalo" NV Propeller Wheel mounted on end of shaft projected thru kiln wall.*

# ...FROM ANOTHER SATISFIED USER OF "BUFFALO" FANS

This letter from The Interkiln-Salgo Engineering Company of Atlanta, Ga. says a great deal about "Buffalo" Fans and "Buffalo" engineering. Interkiln-Salgo uses "Buffalo" Fans exclusively in their Interkiln Tunnel Kiln installations that are setting amazing fuel economy records all over the world. First, "Buffalo" builds a *complete* line of industrial fans backed by 80 years of quality manufacturing. Second, "Buffalo" engineering facilities are ready to develop efficient fan designs for almost any specialized application you may have. Thus, like Interkiln-Salgo and so many other firms, you are assured of the well-known "Q" Factor* of Quality and Satisfaction when you call on "Buffalo" for your air handling needs.

**The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.*

**BUFFALO FORGE COMPANY**

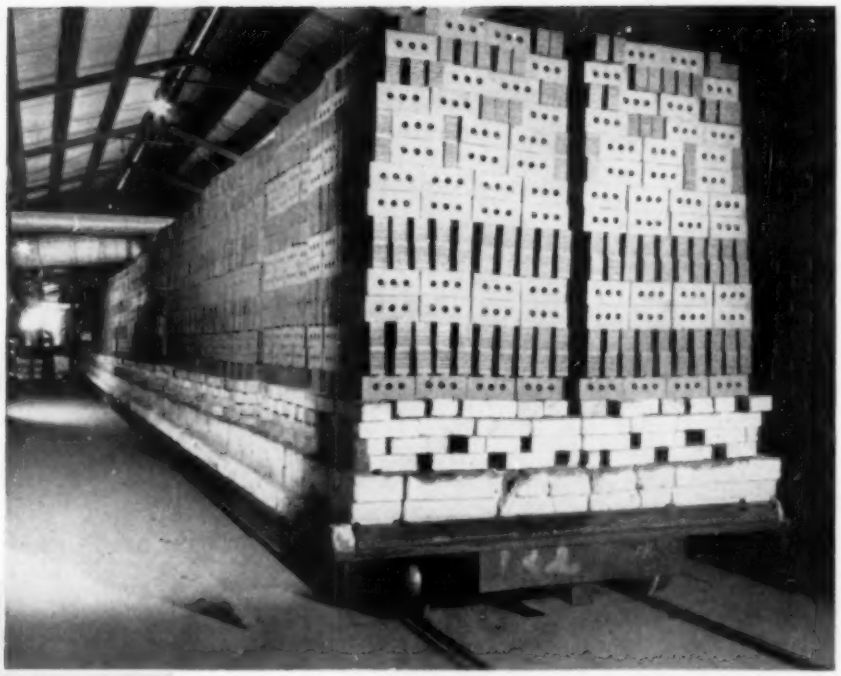
BUFFALO, NEW YORK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

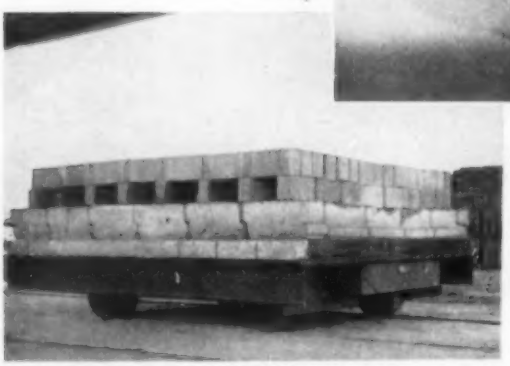
"Buffalo"

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING FORCED DRAFT COOLING HEATING PRESSURE BLOWING

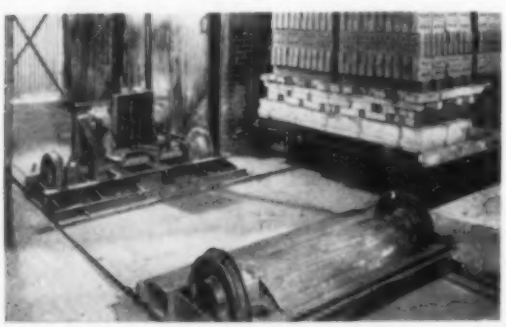
# For greater economy and production



Rows of Greenville Steel Kiln Cars at Broad River Brick Company. Each loaded with 2400 green bricks and ready for the dryer.



Heavy Duty Greenville Steel Kiln Car insulated with fire brick has just been unloaded and is ready for its next trip through the kiln.



Electric Transfer Car built flush with the ground (Allied's new Patent*) allows fork lifts and truck to pass over the top of the transfer car from one part of the plant to another. Two-speed drive handles loaded kiln car quickly and efficiently.

(*Covered by a broad usage patent, No. 2,715,370, issued August 16, 1955, by the U. S. Patent Office.)

## use Greenville Steel kiln cars

For heavy duty, all steel kiln cars, built to your exact specifications at less cost to you, contact Greenville Steel and Foundry Company. These top quality kiln cars, built with trouble-free, cast iron wheels, are being used by brick companies all over the United States. In one test plant 150 of these cars have been in continuous operation for over a year and a half without loss of time due to breakdown.

Greenville Steel kiln cars are designed for fast wheel servicing. The wheel comes off easily for maintenance. When loaded, Greenville Steel kiln cars weigh over 9 tons, but they can be pushed by one man.

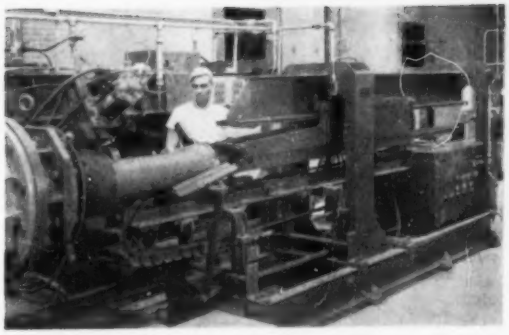
---

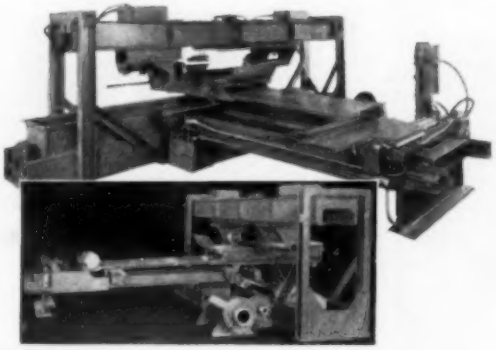
Write, wire, or phone **Greenville Steel Company** today concerning your kiln and transfer car needs.

# GREENVILLE *Steel and Foundry Co.*

**PHONE 5-0461, WADE HAMPTON BOULEVARD**
**P. O. BOX 1199, GREENVILLE, SOUTH CAROLINA**

# 1857-1957
# NEW MACHINES

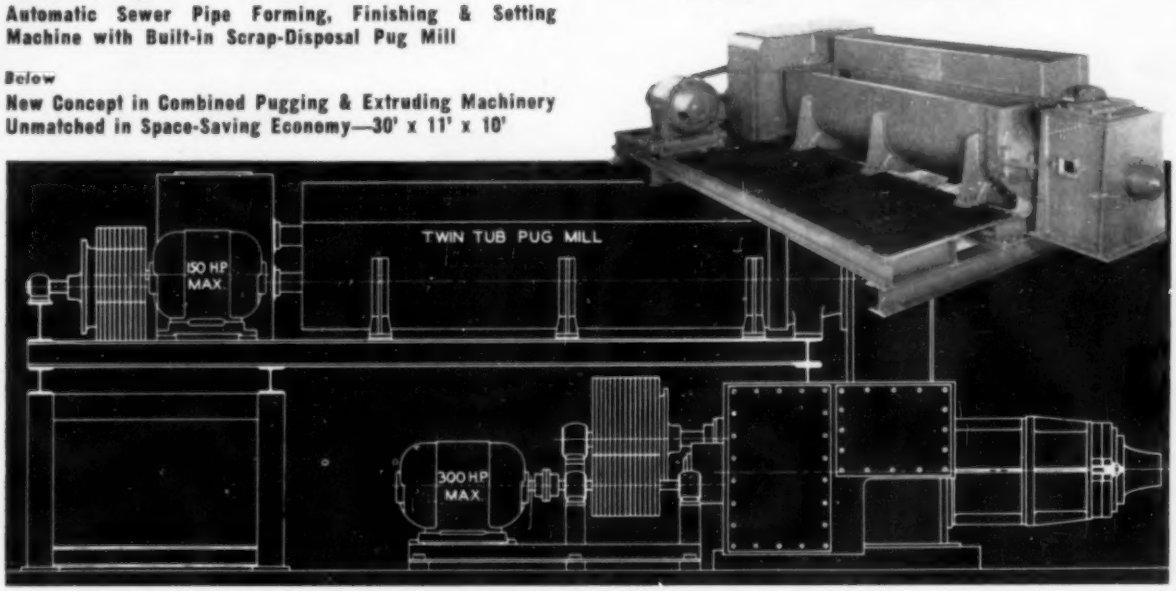




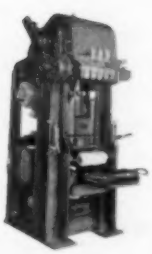
## Designed and Produced in our 100TH YEAR

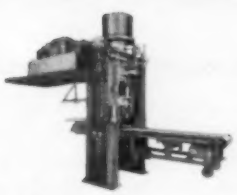
*Above and Top*
**Automatic Sewer Pipe Forming, Finishing & Setting Machine with Built-in Scrap-Disposal Pug Mill**

*Below*
**New Concept in Combined Pugging & Extruding Machinery Unmatched in Space-Saving Economy—30' x 11' x 10'**




*Below*
**Ram-type, 50-ton, Horizontal, Hydraulic EXTRUDER & CUTTER for Refractory Plastic Mixes**





**REPRESSES**

***Left,* #6, 25-ton, variable speed**

***Right,* 75-ton Hydraulic, deep-piercing**

**CHAMBERS BROTHERS CO.**
**52nd & Media Streets · PHILADELPHIA 31, PA.**

# the BUCYRUS ERIE 30-B

## . . . sets new performance standard in the 1-yd. class

Here's a brand new 1-yd. profit-maker for you — the Bucyrus-Erie **30-B**. Offered with either crawler or rubber-tired carrier mounting, it's readily convertible to various front ends — shovel, dragshovel, dragline, crane, or clamshell.

New . . . fast . . . quality-built, the **30-B** is just what you need in a 1-yd. machine to speed stripping and loading operations. Check the brief rundown of features given below; then request full details.

### Matched to your needs

- Your choice of diesel, gasoline, or single-motor electric power. Direct or torque converter drive.
- Five easily-converted front ends — shovel, dragshovel, crane, dragline and clamshell.
- Your choice of five crawler mountings *plus* Transit Crane on rubber-tired carrier.
- Extra equipment for special jobs — independent propel, third drum unit, and cathead.

### Designed to out-perform

- Easy, air control for smooth, big-output working cycles.
- Easy to service — automatic lubrication of many parts.
- Large, cool-running clutches and brakes.

### Built to outlast

- Six conical hook rollers distribute loads evenly between upper and lower works to save wear.
- Five main operating clutches are alike, with parts interchangeable.
- Specially-processed steels add strength and wear resistance.
- Strong, rigid cast revolving frame withstands twisting and bending stresses, maintains machinery alignment.

199E56C-a

**BUCYRUS-ERIE COMPANY**
**South Milwaukee, Wisconsin**

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Gentlemen: Please send me details on the new 30-B.

Name _____

Organization _____

Address _____

City _____ State _____

199E56C-a

Send for complete facts NOW!

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## Letters to the Editor

### Ft. Collins Correction

Editor, BRICK & CLAY RECORD: In your fine October issue, you ran an article regarding the purchase of the old Fort Collins (Colo.) brick plant by the U. S. Burnite Corp. from owners R. W. Scott and D. J. Wierman.

To set the record straight for your readers, the Fort Collins plant was purchased in August, 1955, by R. W. Scott and D. J. Wierman, who have owned this plant from last August, and I hope will continue to own and operate it for a good many years to come.

Several thousand dollars have been spent to modernize this plant. All remodeling has been made by the Ceramic Building & Equipment Co. of Hoisington, who specialize in building and remodeling plants.

This plant will be known as the Mountain Brick & Supply Co. and will produce a modular size, wire cut face brick in all the popular colors now being produced in the trade area.

Willard Robison, former plant manager of the Kansas Brick & Tile Co., will be in charge of operations and will make his home at Loveland, Colo., shortly after the first of January.

D. J. Wierman
Mountain Brick & Supply Co.
Hoisington, Kansas

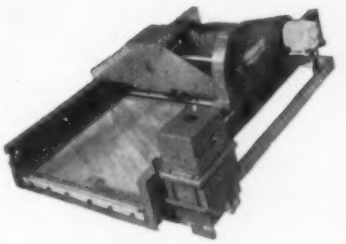
*Ed. Note: Thanks to the writer for correcting our source of information, and adding the news of work being done. Other news of Wierman and Ceramic Building appears in the news pages this month.*

### Correction

Sir . . . On page 34 of your September issue . . . you made mention of our (Malvern Brick & Tile Co.) absorbing the Tom Butler Brick & Tile Distributing Co. of Paragould, Ark. We would like a correction of this in that the (Butler firm) which we purchased effective August 1, 1956, was located at 1324 West Capitol, Little Rock, Ark.

John F. McIntire
General Sales Mfg. Mgr.
Malvern Brick & Tile Co.
Malvern, Ark.

"Mebbe we ought to go to th' speed they recommended."

**Cut Your Production Cost with Exclusive Leahy® INTEGRATED HEAT SCREENING***

The new Model E Leahy Screen with FlexElex heating of screen jacket now offers highest screening efficiency coupled with minimum power consumption and complete elimination of bothersome flexible connectors.

The engineering achievements responsible for these phenomenal results are centered in laminated, air-gap spaced low resistance bus bars that connect the outboard transformer directly to the jacket assembly. Jacket changes are effected without the need for breaking and remaking of any electrical connections. Also, lengthwise application of the current to the jacket increases efficiency and reduces power consumption.

No other heated screen offers such complete integration of all electrical and screen factors. Send for Bulletin 16-EH.

THE Leahy NO-BLIND VIBRATING SCREEN
— offers — INTEGRATED HEAT SCREENING
*Copyright 1957

THE DEISTER CONCENTRATOR COMPANY
*The Original Deister Co., Est. 1906*
913 GLASGOW AVE, FORT WAYNE, IND.

*Michigan Model 12B handles 300 tons per day...*

# The bonus in the bucket pays for this machine fast!

Take a close look at the photograph above—an action shot of a MICHIGAN Model 12B Tractor Shovel handling sand at a Chicago foundry. For this operation, the MICHIGAN was purchased to replace another loader of the same *rated* capacity. But the MICHIGAN *moves substantially more tonnage than the other machine*—approximately 300 tons of sand per day. The photo shows how the load is heaped-up well above the 15 cu. ft. capacity of the MICHIGAN bucket. This "bonus" tonnage in the bucket pays for the MICHIGAN fast.

**More power to dig.** With a 20 percent margin of weight and power over most machines of its rated capacity, the MICHIGAN digs its way into tough material where other machines just spin their wheels. Low-level bucket action enables the MICHIGAN operator to carry the load *low*, with good visibility and safe center of gravity. Clark's exclusive power-shift transmission makes all shifts instantly—high, low or reverse—saves vital seconds on every cycle. This combination of features enables the MICHIGAN to dig bigger loads and move them faster.

**Maneuverability in tight quarters.** Despite its "beefy" appearance and its margin of weight and power, the MICHIGAN 12B is completely competitive in terms of dimensions and maneuverability. It operates neatly and efficiently in boxcars, narrow aisles, storage bins. Furthermore, it is easier to operate in tight quarters because the operator does not have to clutch and declutch between Forward-Reverse. He can actually flip the power-shift lever to High, Low or Reverse without taking his left hand off the steering wheel!

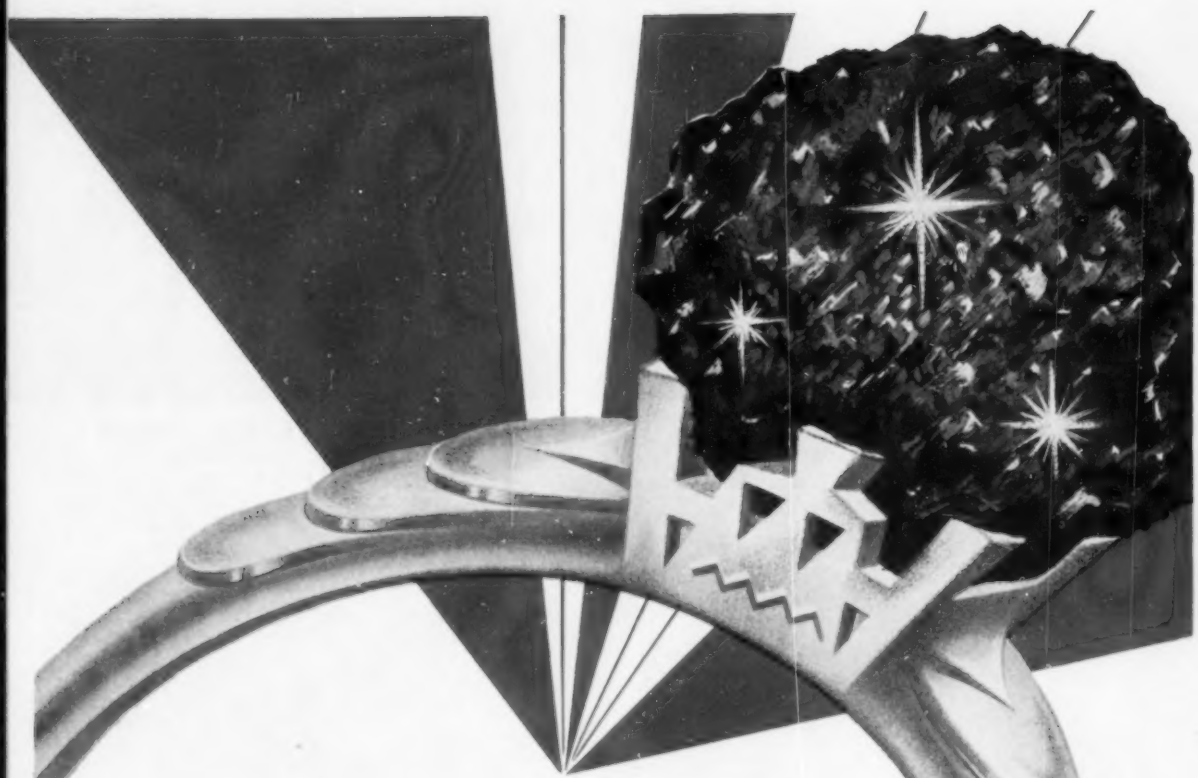
**Write for demonstration.** Don't buy bulk handling equipment until you've seen the MICHIGAN 12B in your plant. No other machine can match the 12B's combination of features or the amount of work it will produce. Clip the coupon to your letterhead to arrange to see it.

Michigan is a registered trade mark of

CLARK® EQUIPMENT

*Arrange demonstration of Model 12B:*

**CLARK EQUIPMENT COMPANY**
**Construction Machinery Division**
2509 Pipestone Road
Benton Harbor 28, Michigan



# Precious Jewel of Industry's Future

"Black Diamonds" are America's most valuable resource for today and tomorrow! Only Bituminous coal can fully meet industry's needs for more electrical energy and more plant-power.

Convenient reserves of B&O Bituminous offer an unlimited supply of coals for every purpose, at low-cost. *Ask our man!*

*LET OUR COAL TRAFFIC REPRESENTATIVES suggest a B&O Bituminous for your needs.*

COAL TRAFFIC DEPARTMENT B&O RAILROAD
Baltimore 1, Md. LExington 9-0400

**BALTIMORE & OHIO RAILROAD**

***Bituminous Coals For Every Purpose***

LINKING 13 GREAT STATES WITH THE NATION B&O ®

# NOW...
# get all famous Skid-Shovel advantages with NEW mining TD-9!

**U. S. BUREAU OF MINES**

**APPROVAL No. 2409**

The components for this new International Drott underground mining tractor were safety-tested and approved at the Bureau of Mines Laboratory, Pittsburgh, Pa. In addition to the built-in exhaust cooling and diffusion system, the Bureau stipulates that for full TD-9 engine hp operation, 9,800 cfm of ventilating air be furnished at the mine face.

**These three factors provide more than an adequate safety factor!**

## 6 attachments for unmatched versatility!

Exclusive Drott Four-In-One is a dozer, bucket, clamshell, and scraper, all in one.

95-inch Drott bull-dozer blade mounts directly onto Skid-Shovel lift arms. Easy to control!

Drott Bullumpledozor blade can be angled to either side and has power tilt from operator's seat!

Rock fork constructed of super-strong alloy steel . . . withstands abrasion of loading hard, heavy minerals.

Third, extra valve of Drott Skid-Shovel controls rear-mounted heavy-duty scarifier.

Low profile, 2-prong grapple with top grab arm loads ties or mine props with full control.

You get exclusive wide work range, low equipment investment, and all other exclusive advantages for underground mining—in the new International Drott TD-9 Four-In-One Mining Skid-Shovel.

This new, big-capacity producer with 71 net engine hp and 24-volt direct electric starting meets U.S. Bureau of Mines new safety standards (Schedule 24) for underground, non-coal mining. It features the new short-coupled, stainless steel scrubber—that cools exhaust to a maximum of 160°F, while dissolving irritating aldehydes with water-bath turbulence. Then Drott design produces an extra-safe 75 to 1 diffusion ratio by fan stream action on the final exhaust—to break up noxious gas concentrations. (Only a 40 to 1 ratio was required!)

### "Mine-tunnel" maneuverability

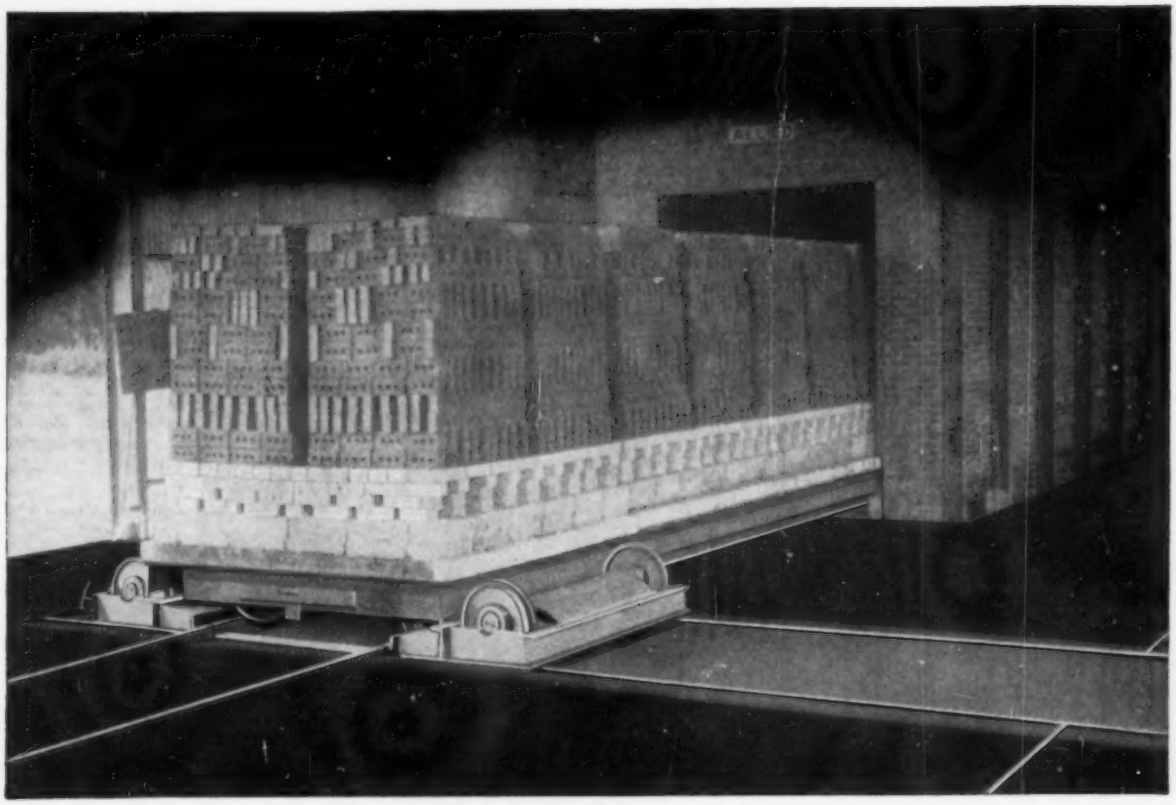
In addition, low, "trolley-clearing" profile (only 6′ tall) and standard length of the new machine provide unmatched full-load maneuverability, even in cramped quarters. You get all the famous Drott exclusives, too, like triple-power pry-action break-out, and shock-swallowing Hydro-Spring!

*Prove the great versatility*, operating ease, and safety of the new underground International Drott TD-9 Four-In-One Mining Skid-Shovel. See your International Drott Distributor for a demonstration.

International Harvester Company, 180 North Michigan Avenue, Chicago 1, Illinois
Drott Manufacturing Corp., 3126 South 27th Street, Milwaukee, 15, Wisconsin

INTERNATIONAL HARVESTER

**INTERNATIONAL® DROTT®**



# LIFT TRUCKS move freely here . . .
# SAVING TIME and MONEY!!

WITH ALLIED FREEWAY floor-level transfer cars, tunnel kiln plants having ALLIED kilns are no longer cut up by pits for transfer cars. Consequently, lift trucks or conveyances hauling ware, or even equipment, into or out of the plant now move freely either throughout the entire plant area or in the kiln and drier sections. This elimination of pits and docks and the affording of many other advantages, including the loading of trucks inside the building, under cover, has made possible many new ideas in tunnel kiln plant layout, resulting in plant modernization and the saving of time and money.

Here is but one of the many advanced features of kiln and plant design that was developed and originally installed by ALLIED. Some of these are outside the kiln, such as the FREEWAY transfer car shown, *U. S. Patent No. 2,715,370.* Similar floor-level transfers and other visible, outside equipment may be seen on other installations. However, there are many features *inside* the ALLIED kiln and drier that cannot be seen or made standard. These features are of the utmost importance in your kiln operation and can be realized only through your purchase of ALLIED kilns and driers. Write today for complete information.

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# Materials Equipment Services

**VERTICAL PIPE FORMING**—For clay pipe up to six feet long. Single rod design that produces sizes from 4" to 42". Production proven de-airing press, maximum density of the clay is attained and lamination is sharply reduced. Equipped with the new, improved Model 38 piston valve, one-piece dearing chamber, electric cutter with push button control, automatic cut-off, tell-tale observation windows and lighting. Toronto Foundry Co., Toronto, Ohio.
**261/Circle on Reader's Service Coupon**

**PREFABRICATED**—Structures for the brick and tile industry are speedily erected, completely flexible and adaptable to your needs. Buildings available include clay storage sheds, kiln buildings, machine buildings, others. R. G. Varner Steel Products, Inc., Box 781, Pine Bluff, Ark.
**262/Circle on Reader's Service Coupon**

**POWER TOOLS**—Flexco power tools can cut belt application times in half. A two man team can now join a belt 30" wide in 15 to 20 minutes; new Flexco Templet positions bolts for quick joining of belts and eliminates reaching under the belt. Running down nuts is fast with new power wrench used with electric or air impact tool. Flexible Steel Lacing Co., 4607 Lexington St., Chicago 44.
**263/Circle on Reader's Service Coupon**

**KILN PUSHERS**—Plus multiple dryer pushers, automatic loading or setting track pusher systems, hydraulic transfer cars and custom auxiliary handling devices are made by Engineering Assoc., Inc., Asheville, N. C., with southern representative Forrest A. Paschal, Siler City, N. C.
**264/Circle on Reader's Service Coupon**

**SCANDURA BELTING** — eliminates fire hazards, will not strip or tear. New Scandura PVC coated conveyor belting eliminates the danger of fire when the belt stops but the driving drum doesn't. This new fireproof belting absorbs terrific impact with minimum abrasion. Scandinavia Belting Co., Newark 1, N. J.
**265/Circle on Reader's Service Coupon**

**TRUCK CRANE**—Unloads off either side. Puts loads on sidewalk where they belong. Requires little space and handles brick or block unpalleted, palleted or packaged. Not necessary to move truck. Unloads one, two or all units at one place. Gentle handling, minimizes chipping and breakage. Everything supplied to mount on your trailer. Bradney Machine Co., Inc., Middletown, N. Y.
**266/Circle on Reader's Service Coupon**

**LEAHY SCREENS** — Design of the new Model E Leahy screen completely eliminates flexible connectors. The electrical circuit between the transformer and screen cloth is through rigid multiple bus bars, which remain permanently connected during jacket changes. The Deister Concentrator Co., Fort Wayne, Ind.
**267/Circle on Reader's Service Coupon**

**BORATE-SALT GLAZE**—Improves your salt glaze, lowers costs. Rasorite is cheaper than either Borax or Boric Acid, yet it gives equally fine results. Make your glazes more durable, impervious to liquids, and uniformly free of crazing. Get the benefits of a borate-salt mixture in your lowered fuel costs, increased production and profits. Pacific Coast Borax Co., 630 Shatto Pl., Los Angeles 5, Calif.
**268/Circle on Reader's Service Coupon**

**HYSTER FORK LIFT**—Trucks work well for close-quarter work and for outside yard over-all types of surfaces. Hyster dealers offer you planning to solve your materials handling problems: the right truck for your job in various capacities, sizes and with many attachments; and the right service to keep your truck operating properly. Hyster Co., Portland 8, Oregon.
**269/Circle on Reader's Service Coupon**

**STOKERS**—Can up profits and lower high costs. Canton claims that their stokers, which can be filled by lift truck, reduce fueling labor costs, lower fuel bills, give cleaner operation and improve kiln operation. Canton Stoker Corp., Canton, Ohio.
**270/Circle on Reader's Service Coupon**

**PRESSES**—More than 95% of all dry press refractories produced in this country are made on Boyd Presses, according to C,B&W. Liners, dies and mold equipment to produce many special shapes are available along with engineering service and 68 years' experience to help you get top production results. Chisholm, Boyd & White Co., 610 W. 57th St., Chicago 21.
**271/Circle on Reader's Service Coupon**

**DRYER CARS**—All dryer cars, single, double, and triple deck, are equipped with patented bearings. These are dust proof, oil retaining, flexible boxing with roller bearings. Renewable steel liners and heavy, strong construction of brackets and boxing. Chase Foundry & Mfg. Co., 2300 Parsons Ave., Columbus 7, Ohio
**272/Circle on Reader's Service Coupon**

**DODGE PRODUCTS**—Bulletins are available on Dodge-Timken pillow blocks; Taper-Lock all Steel conveyor pulleys; Taper-Lock sprockets and Dodge roller chain. Bulletins in order are numbered A-638A, D-56, and A-644. Dodge Mfg. Corp., Mishawaka, Ind.
**273/Circle on Reader's Service Coupon**

**POLYFON** — A sulfonated derivative of pine wood lignin adds hardness and strength in unfired tile, and decreases breakage. It insures sharper, more uniform edges and cuts down rejects. A small percentage added to the batch will do the job in either a dry press or an extrusion process, and will help give uniformity and greater strength with reduced water requirements. West Va. Pulp Paper Co., Charleston A., So. Carolina.
**274/Circle on Reader's Service Coupon**

**VIBRAPACS**—are producing as well today as they did when installed nine years ago, according to Nitterhouse Concrete Products Co. In addition to standard wall units, Nitterhouse also produces concrete floor and roof systems, pre-stressed beams and split block. A second plant of the company has also installed the Vibrapac. Besser Co., Box 139, Alpena, Mich.
**275/Circle on Reader's Service Coupon**

**CROS-FLO KILNS**—Use controlled, scientific cooling for high production of quality brick, beginning with a laboratory analysis of your material to determine cooling requirements; accurately controlled air temperature in each cooling section; automatic or manual control of cooling at any stage; resulting in a quality product. Miller Equipment Co., Box 1566, Salisbury, N. C. will tell you more.
**276/Circle on Reader's Service Coupon**

**HYDRAULIC DRILL**—Samples obtained from depths up to 100 feet with the all new Permanco Model HV-12 172 hydraulic vertical drill. A heavy duty unit with four speed auger, finger tip control, 65 H.P. motor and Timken roller bearing mounted drives. Rugged, compact with three leveling jacks to insure straight holes. Paris Mfg. Co., Paris, Ill.
**277/Circle on Reader's Service Coupon**

**DRY PANS**—A pair of American 9-ft. dry pan grinders have been working for years for Whitesello Brick & Lumber at Corsicana, Tex., actually since after the turn of the century . . . with estimated material ground for some 450 million brick. Both seem to have plenty of life left. The two handle nine yards of clay and shale hourly, on a 9-hour a day, six-a-week schedule. American Clay Machinery Co., Marion, Ohio.
**278/Circle on Reader's Service Coupon**



*Please say "I saw It in B&CR"*

**V-BELT** — Cost savings two ways are claimed for Gates Super Vulco Rope. Savings on belt replacements and on maintenance down time are results of use of oil and heat resistant V-belt with 40% more horsepower capacity . . . a belt that easily handles heavy shock loads. A concrete block plant reports 7 times the average life with use of these Gates belts. Gates Rubber Co., Denver, Colo.

**279/Circle on Reader's Service Coupon**

**STOP LEAKS**—In pipe threads with Tru-Seal which does away with pipe "dope" compounds, eliminates damage caused by overtightening; is immune to all known hydraulic fluids and to steam, air, water, etc. Comes in 1/8" to 2½" pipe thread sizes with Teflon seal. Tru-Seal Div., Flick-Reedy Corp., Melrose Park, Ill.

**280/Circle on Reader's Service Coupon**

**STAINS**—A wide range of brilliant colors and pastels that are stable at high temperature; strong, uniform body or engobe stains for producing colored bodies for slip application; laboratory controlled to insure workability and color uniformity . . . all features of their products for solving color problems according to B. F. Drakenfeld & Co., 45 Park Place, New York 7.

**281/Circle on Reader's Service Coupon**

**ROTARY CRUSHERS**—For uniform crushing, the Sturtevant Fine Rotary Crusher is reported to be practically non-clogging, faster and less costly to operate than other machines. Single turn of a hand wheel regulates the output sizes; swinging open-door design allows one-man, one-minute accessibility for inspection, clean-outs, trouble-shooting. Sturtevant Mill Co., Boston 22, Mass.

**282/Circle on Reader's Service Coupon**

**EXTRUDER-CUTTER**—A 50-ton horizontal, hydraulic extruder and cutter for refractory plastic mixes has been announced by Chambers. The automatic unit was designed to fill a need for a ram-type extruder to successfully handle highly abrasive mixes not suitable for auger extrusion. Among the features are completely self-contained extruder, with built-in hydraulic system, reservoir and controls; automatic or manual cycling, with Hydraulic Cutter. Chambers Bros. Co., 52nd & Media Sts., Philadelphia 31, Pa.

**283/Circle on Reader's Service Coupon**

**WELDING**—A Western tile manufacturer using a highly abrasive material had a problem of short hammer mill hammer life. With use of Cast Stoodite and a simple change in rebuilding procedure, hammer life was multiplied 300%, according to Stoody engineers. The Stoody Guidebook shows how hard-facing can prolong life of all wearing equipment in the brick and clay industry. Stoody Co., 11937 E. Slauson Ave., Whittier, Calif.

**284/Circle on Reader's Service Coupon**

**ULTROX**—for better glazed brick and tile at less cost. Simplifies color and texture control. A specially prepared zirconium opacifier, Ultrox helps to maintain uniformity of color and texture. Every batch is carefully controlled for purity and particle size. Metal & Thermit Corp., Rahway, N. J.

**285/Circle on Reader's Service Coupon**

**COMBINATION BURNER** — The Schurs #18 oil-gas burner is a multi-purpose burner to fit most industrial applications. It operates on low pressure, blower supplied air for manual or automatic operation. Schurs Oil Burner Co., 8500 Zamore Ave., Los Angeles 1, Calif.

**286/Circle on Reader's Service Coupon**

**BLOCK MACHINE**—A single Columbia 12"-high is enabling clay brick manufacturers to supplement their output with a full line of concrete masonry. Columbia's "one machine" block plant requires a minimum of maintenance and floor space to produce all standard 4 and 8" block plus flue liners, water meter boxes and other shapes. Columbia Machine Co., Vancouver, Wash.

**287/Circle on Reader's Service Coupon**

## How to Get Rush Information

**If you want further information or literature describing the products in this special features, just use the handy coupon you will find on page 18. Our Reader's Service Dept. will contact the manufacturers directly and see that you obtain the requested information as quickly as possible.**

**PACO CAR TOPS**—have cut replacement costs up to 50% in many plants. Reported to be stronger, give better heat distribution, produce uniform ware and last longer. North State Pyrophyllite Co., Greensboro, N. C.

**288/Circle on Reader's Service Coupon**

**SHREDDER**—The Gleason Shredder will shred any type of clay and most shales—plastic or non-plastic. Handles up to 4 tons per minute. From truck to stockpile this unit automatically shreds and stockpiles in one operation. Simplifies storage, use any type shed. Saves time and money; one man handles the entire operation. Gleason Foundry Co., P. O. Box 66, Gleason, Tenn.

**289/Circle on Reader's Service Coupon**

**ALL STEEL BUILDINGS**—New Stran-Satin-Walls are durable, non-corrosive, have a full commercial zinc coating, plus a new rib design that combines strength with advanced styling. Five clearspan width to offer you unlimited flexibility for the size and shape building best suited to your needs. Stran-Steel Corp., Ecorse, Detroit 29, Mich.

**290/Circle on Reader's Service Coupon**

**PYROMETERS**—Fully automatic, sight it, press the button, and temperature is registered automatically of big, easy to read dial. The radiation pyrometer comes in two, standard double ranges: Model No. 1: 1000-2600° F.; Model No. 2: 1400-3400° F. Optical pyrometer that shows temperatures on minute spots, fast-moving objects, smallest streams. Weight 3 lbs., completely self contained. Five temperature ranges. Pyrometer Instrument Co., Bergenfield 15, N. J.

**291/Circle on Reader's Service Coupon**

**FORMING EQUIPMENT** — Semi-automation of your forming equipment can pay big dividends in reduced labor and other costs; can provide improved quality and uniformity in ware. Steele has a set-up with die oil pressure recording instrument; a master control panel with switches and buttons for all equipment in the machine room; an indicating flow controller. J. C. Steele & Sons, Statesville, N. C.

**292/Circle on Reader's Service Coupon**

**PUG MILL**—An F-R-H Jr. is in use at Ottumwa B & T that has been in 25,000 hours of operation over 12 years and is still going strong. Long service and top performance are claimed characteristics for F-R-H ceramic machinery along with cost cutting and improved production ability. Free engineering service is available to tailor the machine to your needs. Fate-Root-Heath Co., Dept. B-1, Plymouth, Ohio.

**293/Circle on Reader's Service Coupon**

**TUNNEL KILNS**—Mission Valley Brick Co. saved $40,000 on their new automatic interkiln. Completely automatic tunnel kiln that works better for lower costs. Heavy duty continuous operation that produces face brick, tile, refractories, sewer pipes and other heavy clay products. Everything from layout to operation. Interkiln-Salgo Engineering Co., Atlanta, Ga.

**294/Circle on Reader's Service Coupon**

**ORGANIC BINDERS**—Suitable for increasing the molding and dry strength of brick, clay refractories, terra cotta, structural tile, and sewer pipe. Small amounts required and easy to use. Economical and larger production of top quality items absorbs your investment. Robeson Process Co., American Gum Products Co., 500 Fifth Ave., New York 36, N. Y.

**295/Circle on Reader's Service Coupon**

**CLEARFIELD MAXIMULLERS** — are a modern development of the standard dry pan design. Though the operating principles are essentially the same, certain design ideas have resulted in lower maintenance and power consumption unequalled on the basis of cost per ton of product. Built in two sizes for your needs, with 9 or 10-ft. diameters. Clearfield Machine Co., Clearfield, Pa.

**296/Circle on Reader's Service Coupon**

# An important message for manufacturers of glazed brick

Architects in increasing number are writing deeply tinted and pastel colored glazed brick into their specifications for commercial buildings as well as residential structures.

As every brick manufacturer knows, this trend imposes new and different problems on production. Their solution is clearly not within the scope of normal day-to-day operations. Clays, methods and equipment vary so widely in various plants, the basic techniques of applying colored glazes must be adapted to each situation. Equally important, color formulation must be compatible with conditions and the characteristics of the brick itself.

For many years, Drakenfeld has supplied the industry with high-quality engobe stains and glaze stains. Today our "know how" can be particularly helpful to brick manufacturers in meeting the challenge of growing demand for glazed brick in a wide range of colors. Now more than ever before our complete research, color processing facilities and service can assist you in producing modern, colorful glazed brick economically and selling it profitably.

We invite you to call in one of our field engineers for a discussion of our cooperation in color research and application and our ability to serve you.

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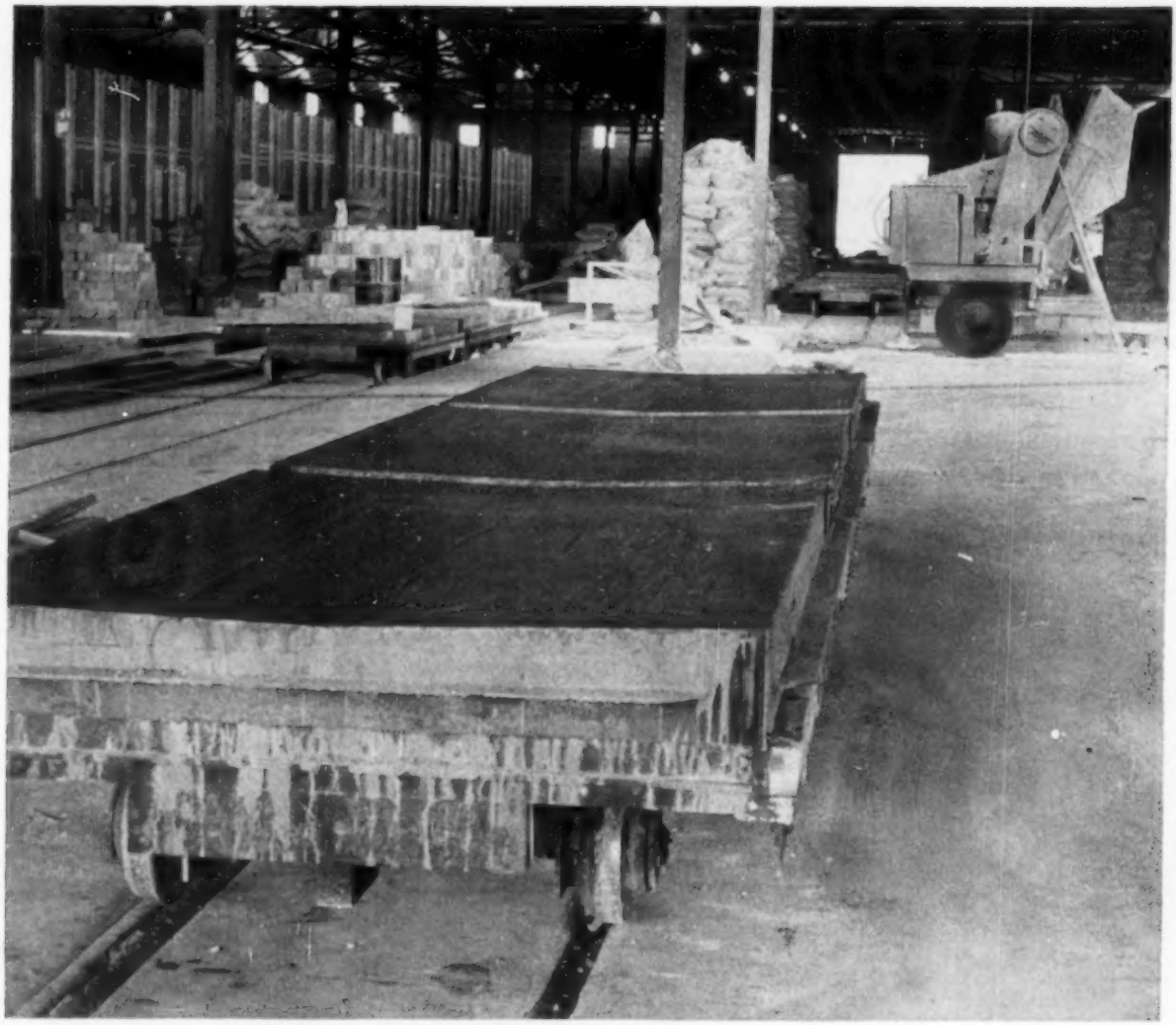

Newly finished LUMNITE-concrete car top at the Caledonia, Ohio, plant of the Marion Brick & Tile Company, which continues to use Lumnite in this new plant as a result of years of satisfactory experience with Lumnite refractory concrete car tops in their Marral, Ohio, plant.

# Car tops made with Atlas LUMNITE* Cement last longer . . . cost less

- Lumnite-made refractory concrete has greater resistance to thermal shock and severe service conditions.
- Monolithic refractory concrete adds to superstructure stability, reduces kiln-car wrecks, requires minimum maintenance.
- Placement is fast, easy, and can be done with plant labor – service strength is reached within 24 hours. (For maximum convenience, use Lumnite-made castables. These are pre-mixed, ready for use, and are made and distributed by leading manufacturers of refractories.)

For more information, write:
Universal Atlas, 100 Park Avenue, New York 17, N. Y.

*"LUMNITE" is the registered trademark of the calcium-aluminate cement manufactured by Universal Atlas Cement Company.

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# NEW equipment

THE LATEST IN SUPPLIER DEVELOPMENTS

## Power Dispenser

This mill-type dispenser is claimed to speed up bottlenecks caused by manual methods of measuring and cutting straps. A push button enables the machine operator to control the length of strap fed through the cutter jaws. When the right length has passed through, the button is released and the strap halted. Pulling the cutter handle toward the operator cuts the strap. Strap is fed through at a rate of 6 to 10 ft. per second. Signode Steel Strapping Co., Chicago 47, Ill.

297/Circle on Reader's Service Coupon

## Tractor-Scrapers

Clark Equipment Co.'s new Model 110 "Michigan" Tractor Scraper and a "Michigan" 180 Tractor Dozer team up on push-loading job. Matched for size, the two engines have interchangeable Clark power trains and engines. Full 90 degree power steering in either direction is a feature of all new "Michigan" Tractor Scrapers announced. The Model 110 shown here will make a 180 degree turn on a 30-foot roadbed. Positive forward ejection and return is provided in the tractor scrapers for precise spreading control and fast unloading. Clark Equipment Co., Benton Harbor, Mich.

298/Circle on Reader's Service Coupon

## Mobile Rotary Drill

A new, high-powered mobile rotary drill, the B-52 Pacemaker, handles auger boring, core and percussion drilling and soil sampling with equal speed and versatility. This model features a hollow stem auger that allows soil sampling without withdrawing the auger from the hole. Also, when rock has been reached, coring may be continued through the hollow stem of the auger. This drill is self-powered and can generate up to 5 tons push or pull ram force, and handles 6-ft. sectional augers in sizes from 3 in. to 24 in. and drives a full 6-ft. stroke. It can bore to 150 ft. in unconsolidated materials, to 600 ft. with N rods and 1000 ft. with A rods. Mobile Drilling, Inc., 960 N. Pennsylvania St., Indianapolis, Indiana.

299/Circle on Reader's Service Coupon

## Pyrometer Kit

A new pyrometer kit furnishes all parts and components necessary to make a complete pyrometer. It can be used in all types of atmospheres in kilns and furnaces. The kit includes a calibrated meter, 6 ft. of thermocouple wire, a monel metal tubular thermocouple well, a meter mounting bracket with all necessary screws and nuts for its assembly, together with step-by-step instructions. Two models are offered; one has a thermocouple of Chromel-Alumel with a range up to 2300°F.; the other has an Iron-Constantan thermocouple with a range to 2300°F. Pacific Transducer Corp., 11836 W. Pico Blvd., Los Angeles 64, California.

300/Circle on Reader's Service Coupon

## Truck Crane

A truck crane version of the model 305 excavator is now being made by Koehring. As a crane, it will lift loads up to 25 tons, with road travel speed of 30.2 mph. According to Koehring, all the improved features of the 305 crawler excavator have been retained in the truck mounted model. The upper machinery arrangement has been simplified to contain only two major horizontal shafts; the turntable has sidestands on which the main cross shafts revolve in anti-friction bearings. The standard 30-ft. main boom can be extended to a maximum allowable 100-ft. length for high lift crane service; also a jib boom up to 30-ft. can be added. The truck chassis is equipped with 5 main and 2 auxiliary forward speeds. Koehring Co., Milwaukee 16, Wisconsin.

301/Circle on Reader's Service Coupon

## Overload Protection Kit Available for Auger Machines

This photo shows the component parts of an Overland Protection Kit developed by the Fate-Root-Heath Company to warn operators of approaching overload conditions at the extrusion die of their de-airing machines. This kit can be adapted to any F-R-H auger machine.

The device detects overloads by two different methods. First the normal operating current of the driving motor is continuously monitored so that any abnormal increase in amperage will activate the warning horn. At the same time the deflection at the thrust housing on the auger shaft is measured and any excessive deflection will also sound a warning. Either or both conditions indicate an approaching overload at the die and the warning horn gives the operator notice of it in time to take corrective action on the clay mixture.

Should the current value and deflection increase to the danger point, the overload protection kit will automatically disengage an air clutch, or an air cylinder connected to a manual clutch, allowing the motor to continue at no load and preventing possible damage or breakage to the machine.

Development is underway on automatic water control of the clay and this feature will be incorporated with the

overload protection kit now available. When this is perfected, completely automatic control free of human error wil be available for any F-R-H de-airing machine.

302/Circle on Reader's Service Coupon

## Airfoil Fans

A new series of airfoil fan blades has been added to the line of radial wheel and backward curve types made by Buffalo Forge. The new fan is reported to perform at 92% mechanical efficiency and is suitable for forced draft as well as air moving. The airfoil blades are internally strutted; blades are very broad at the point where air enters the wheel, providing deep "bite." The new fans are available with three different airfoil wheels for varying pressure and capacity requirements. Also available are three semi-airfoil wheels. Buffalo Forge Co., Buffalo, N. Y.

303/Circle on Reader's Service Coupon

## High Temperature Lubricant

Belco #5016 Grease is a new, high temperature, stable, non-melting complex grease containing micronized natural flake graphite, a jelling agent, and a specially formulated non-carbonizing oil with additives. At elevated temperatures the base oil in Belco #5016 Grease evaporates completely leaving only the pure graphite in the bearings. It is stable up to 1200°F. Belco #5016 Grease is guaranteed not to carbonize, harden or form any decomposition products. Write to the Bel-Ray Company, Inc., Madison, N. J., for additional information.

304/Circle on Reader's Service Coupon

## Pneumatic-Tired Lifts

The first model in a new line of gas-powered, pneumatic-tired fork lift trucks has been introduced by Baker-Raulang. Called the Model FGF-40, the new 4,000-lb. truck is reported to feature high maneuverability due to short turning radius and power steering; provision for optional dual or single drive wheels, and an extra-powerful engine for the demands of outdoor work. Overall length is 85¾ in., with turning radius of 79 in. The engine has 48.2 hp. Baker-Raulang Co., Cleveland 1, Ohio.

305/Circle on Reader's Service Coupon

## New Lorain

A new model in the Thew Shovel Co.'s line of Lorain power shovels and cranes is the fully air-controlled, 1¼-yd. Lorain 56. Convertible to shovel, crane, clamshell dragline or hoe service, the "56" incorporates many new features contributing to greater operator comfort and ease of operation, increased production and longer operating life of the machine. Among these new features are: (1) 2-Lever, "metered air" controls for all turntable operations, (2) Positive, effortless "air-ease" power, crawler controls, (3) "Shear-Ball" mounting, eliminating center pin and nut, centering gudgeon, turntable rollers; thus eliminating center pin and nut, centering gudgeon, turntable rollers; thus eliminating their attendant wear and adjustment, (4) detachable counter-

weight to facilitate over-the-highway travel, and (5) lighter, stronger, longer, all-welded crane booms of a new material with square-tubular-main-chords and round tubular lacing. Thew Shovel Company, Lorain, Ohio.

306/Circle on Reader's Service Coupon

**For complete information check items at right and mail coupon to:**

**Reader's Service Brick & Clay Record 5 So. Wabash Ave. Chicago 3, Ill.**

No action on coupon requests can be guaranteed after February 17, 1957

261—Toronto Foundry Co.
262—R. G. Varner Steel Products Inc.
263—Flexible Steel Lacing Co.
264—Forrest A. Paschal
265—Scandinavia Belting Co.
266—Bradney Machine Co., Inc.
267—The Deister Concentrator Co.
268—Pacific Coast Borax Co.
269—Hyster Co.
270—Canton Stoker
271—Chisholm, Boyd & White Co.
272—Chase Foundry & Mfg. Co.
273—Dodge Mfg. Corp.
274—West Va. Pulp Paper Co.
275—Besser Co.
276—Miller Equipment Co.
277—Paris Mfg. Co.
278—American Clay Machinery Co.
279—Gates Rubber Co.
280—Flick-Reedy Corp.
281—B. F. Drakenfeld & Co.
282—Sturtevant Mill Co.
283—Chambers Bros. Co.
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285—Metal & Thermit Corp.
286—Schurs Oil Burner Co.
287—Columbia Machine Co.
288—North State Pyrophyllite Co.
289—Gleason Foundry Co.
290—Stran-Steel Corp.
291—Pyrometer Instrument Co.
292—J. C. Steele & Sons
293—Fate-Root-Heath Co.
294—Interkiln-Salgo Engineering Co.
295—Robeson Process Co.
296—Clearfield Machine Co.
297—Signode Steel Strapping Co.
298—Clark Equipment Co.
299—Mobile Drilling, Inc.
300—Pacific Transducer Corp.
301—Koehring Co.
302—Fate-Root-Heath Co.
303—Buffalo Forge Co.
304—Bel-Ray Co.
305—Baker-Raulang Co.
306—Thew Shovel Co.
307—Stran-Steel Corp.
308—Memphis Equip. Co.
309—Amsco
310—Hauck Mfg. Co.
311—Minneapolis-Honeywell
312—Victor Equip. Co.

NAME..... TITLE.....

COMPANY .....

STREET..... CITY..... STATE.....

# SUPERLITE UNLOADERS

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## TESTED

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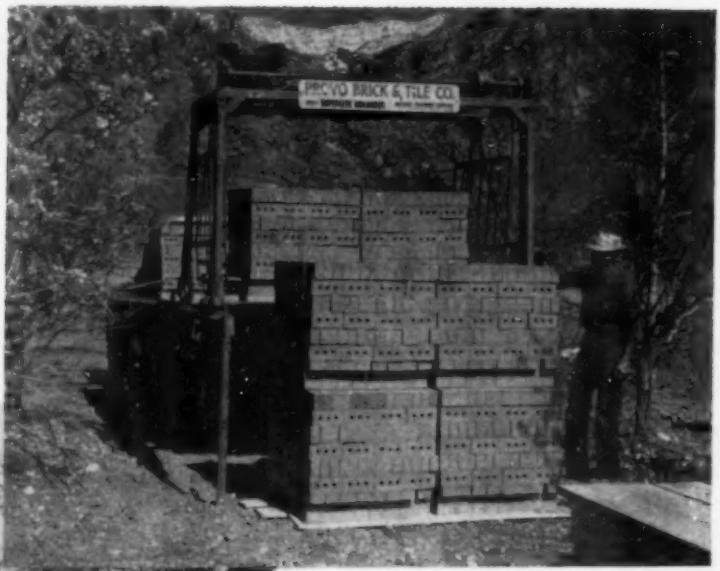

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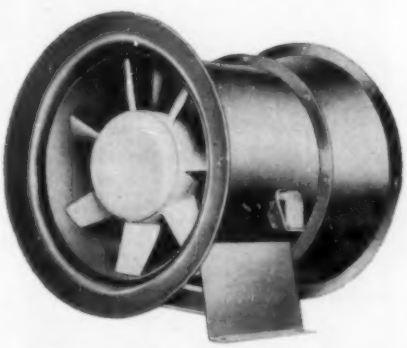
# How to Cool a Kiln—3 TIMES FASTER!

## Portable Westinghouse Axial Fan Supplies 26,000 CFM of Cooling Air for Brick Oven

Waiting for brick ovens to cool so workers could remove baked bricks used to take as long as three days at Galena Tile and Brick Company, Galena, Ohio. *Now* — with portable Westinghouse Axial Fans providing cooling air — kiln temperature drops from 800° to 100° in just 22 hours. Result: time saved, production increased.

Ask your nearest Sturtevant Sales Engineer for complete data on the full line of Axiflo fans, with capacities from 1,700 to 100,000 CFM and 14 sizes to meet any application need. Or write

Westinghouse Electric Corporation, Sturtevant Div., Dept. 17A, Hyde Park, Boston 36, Mass.



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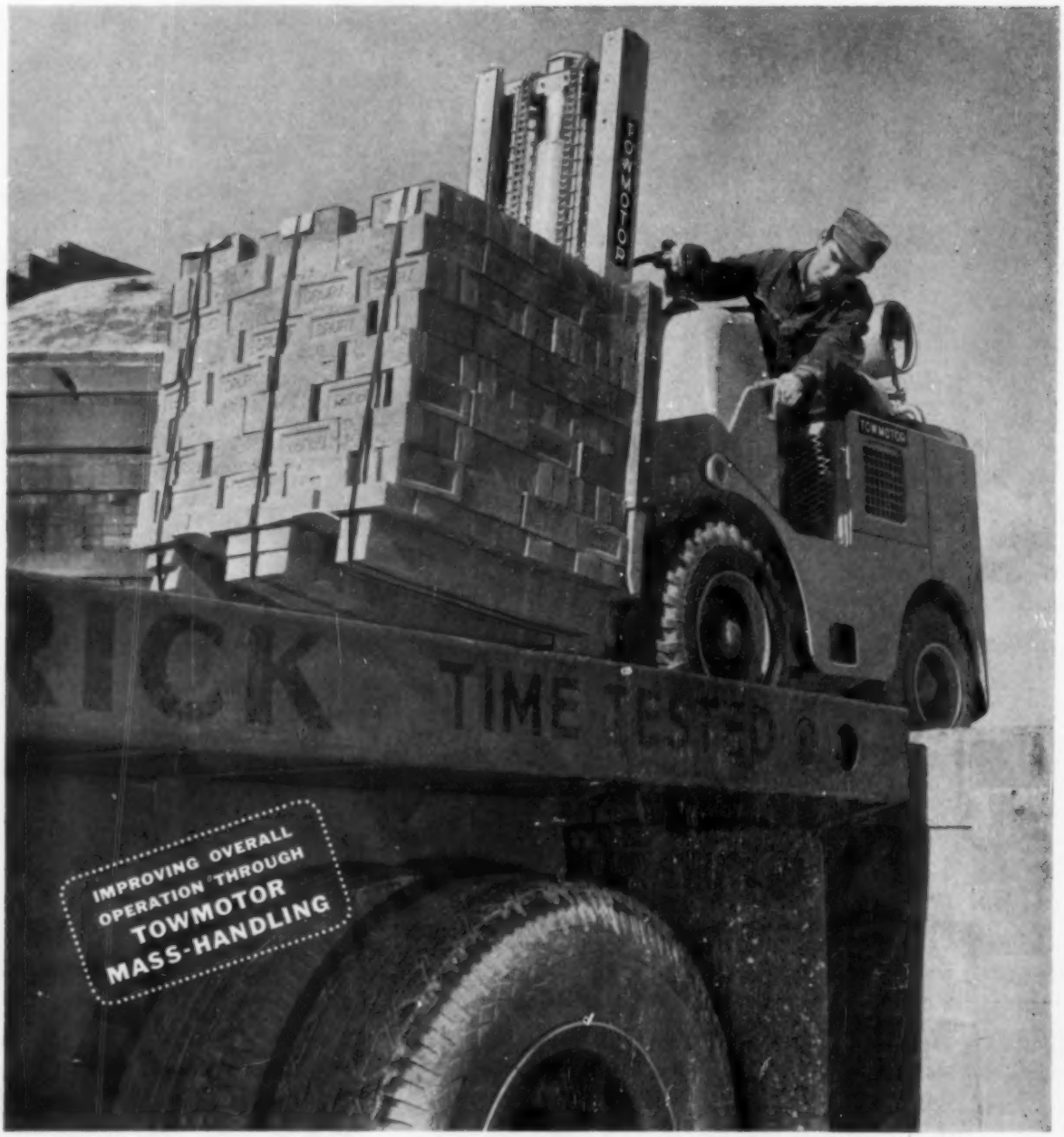
YOU CAN BE SURE...IF IT'S Westinghouse

J-80597




# ...new yardstick for measuring profits!

**Towmotor Mass-Handling**—moving more units faster, at lower cost—can well be the investment that promises greatest improvement in your future profits, as you face continually rising costs and a shrinking manpower pool.

Integrating Towmotor lift trucks in your departmental operations lets you *supplement* your personnel without adding to your payroll. Enables your men to do a bigger day's work *easier*. Sends them home *fresher*. Permits each one to handle jobs you'd pay a *crew* to do!

Have you seen the new Towmotor lift trucks lately? They offer a wealth of "first-time" features such as:

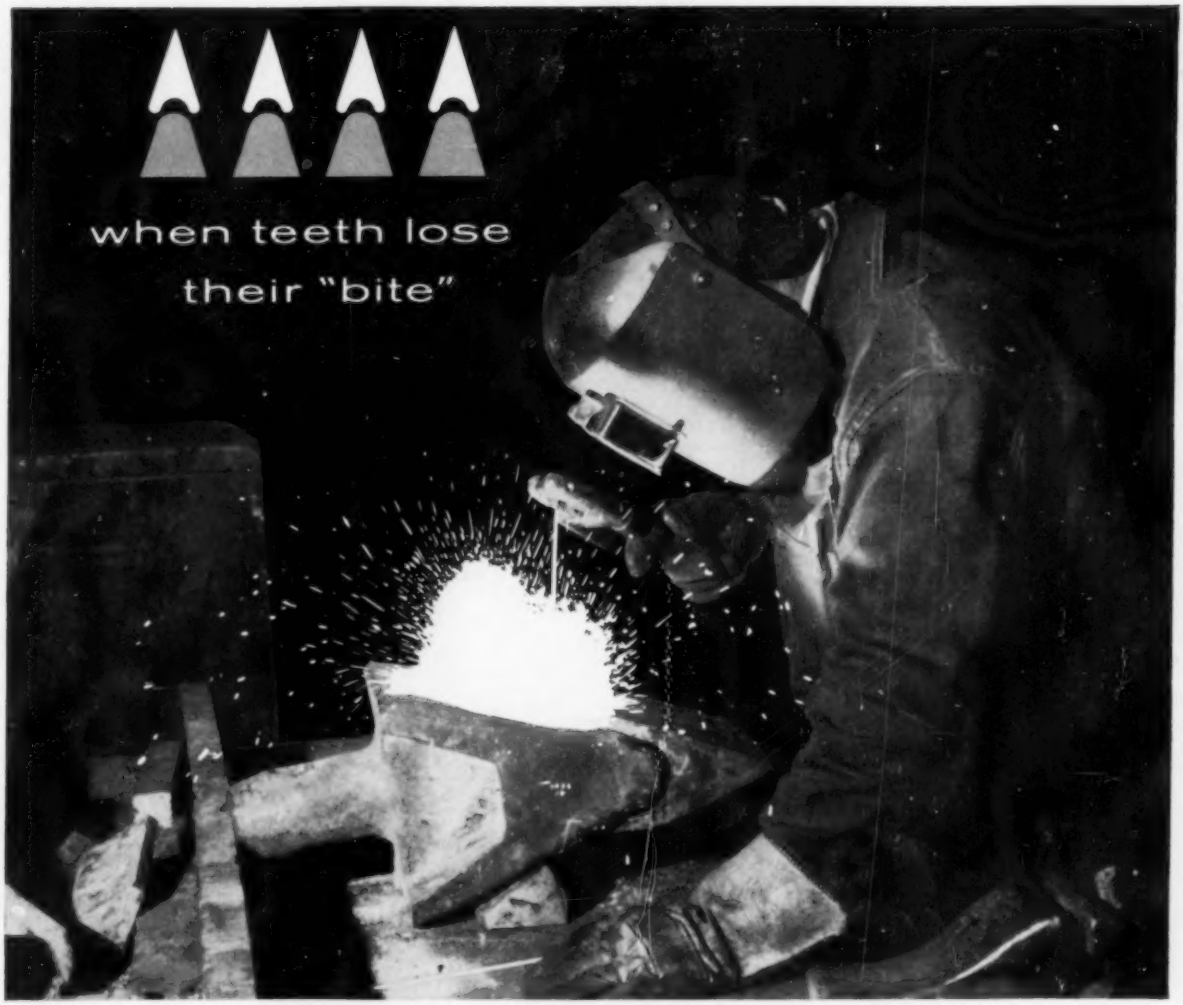
- Fatigue-free adjustable seating
- Motion-saving "centralized control"
- Maximum free lift that tops all
- No-loss hydraulic lifting action
- Power steering that saves 80% of operator's efforts

Get Bulletin SP-23 on new Towmotor lift trucks from Towmotor Corporation, Cleveland 10, Ohio.

***Leaders for 38 years in building Fork Lift Trucks, Tractors and Carriers***

**TOWMOTOR** THE ONE-MAN-GANG® - GERLINGER

*Gerlinger Carrier Company, Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland 10, Ohio*




# It's a **15-MINUTE REBUILDING JOB**
## with Amsco® Cast-to-Shape Repointers

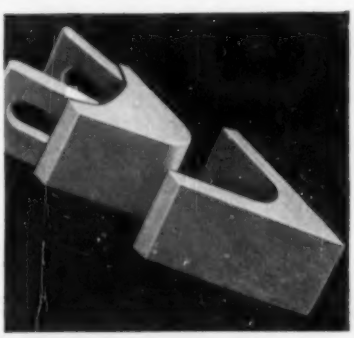
**Easy to weld on . . . add strength and service life to entire tooth**

Where dipper-tooth wear is moderate, and where digging conditions are not too severe, Amsco Cast-to-Shape Repointers provide a cost-saving answer to tooth replacement.

An average-size tooth can be completely rebuilt in about 15 minutes. The repointer overlaps the tooth top and bottom and is easily welded in place, using only a few electrodes.

Cast of Amsco Manganese Steel, with "ears" that protect the flat sides of the tooth, these repointers add strength and service life to the entire tooth. Available as individual repointer units, or in bar lengths.

For heavy digging, use Amsco "Wear-Sharp" Repointers or Repointer Bars. Order Amsco Repointers from your nearby Amsco Distributor.



AMERICAN Brake Shoe COMPANY

# AMSCO

American Manganese Steel Division · Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS; JOLIETTE, QUEBEC

Distributed in Canada by Canadian Liquid Air Co., Ltd.

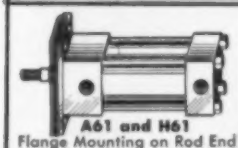
over 8,000 Different Cylinder SELECTIONS—

# Miller AIR AND HYDRAULIC CYLINDERS AND BOOSTERS "IN STOCK" for immediate delivery.

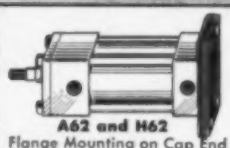
See Miller Bulletins A-105K (Air) and H-104K (Hydraulic) for Complete Dimensions and Engineering Data on these "in-stock" sizes and other Custom Miller Cylinders in bores up to 20" and strokes up to 22 feet.

## "IN-STOCK" MODELS

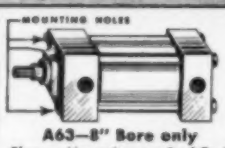
"A" Signifies Miller 200 psi Air Cylinders; "H", 2000 psi Hydraulic Cylinders. Interchangeable Mountings Are Shown In Red On Drawings.



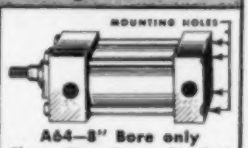
**A61 and H61**
Flange Mounting on Rod End
(A61 not available in 8" bore)



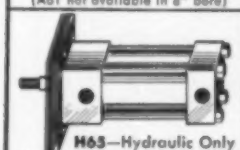
**A62 and H62**
Flange Mounting on Cap End
(A62 not available in 8" bore)



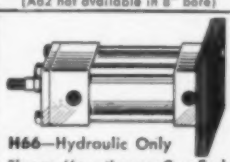

**A63—8" Bore only**
Flange Mounting on Rod End



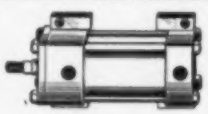

**A64—8" Bore only**
Flange Mounting on Cap End



**H65—Hydraulic Only**
Flange Mounting on Rod End

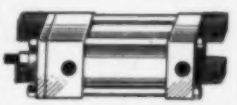


**H66—Hydraulic Only**
Flange Mounting on Cap End

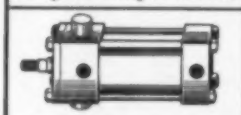


**A72 and H72**
Side Lug Mounting

**A74 and H74**
Side Flush Mounting

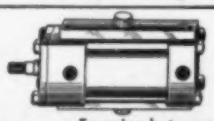


**A77 and H77**
Side or Foot Mounting



**A81 and H81** Trunnion Mounting on Rod End

**A82 and H82** Trunnion Mounting on Cap End



**A83 and H83** Trunnion between Head and Cap
(one week delivery)

**A84 and H84**
Pivot Mounting

**A86 and H86**
Pivot Mounting

**A50 & H50**—Tie Rods not extended beyond nuts.
**A51 & H51**—Tie Rods extended both ends (shown).
**A52 & H52**—Tie Rods extended. Cap End only.
**A53 & H53**—Tie Rods Extended. Rod End only.
**A54 & H54**—Two Tie Rods extended at both ends.

## IN STOCK BORES (in inches)

| | BORES | ROD DIA. | ROD TURN DOWN & THREADS | "IN-STOCK" STROKES (in inches) | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIR | 1½ | ⅝" | 7/16-20 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | |
| | 2 | ⅝" | 7/16-20 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 2½ | ⅝" | 7/16-20 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 3¼ | 1" | ¾-16 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 4 | 1" | ¾-16 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 5 | 1" | ¾-16 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 6 | 1⅜" | 1-14 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 8 | 1⅜" | 1-14 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| HYDRAULIC | 1½ | ⅝" | 7/16-20 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | |
| | 2 | 1" | ¾-16 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 2½ | 1" | ¾-16 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 3¼ | 1⅜" | 1-14 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 4 | 1¾" | 1¼-12 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | 5 | 2" | 1½-12 | Cushioned | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |
| | | | | Non-Cush. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 32 | 36 |

(1) (2) (3) (4)

"A" and "H" Models 82, 84 and 86 with strokes over 18" require stop tubes.

Column strength requires larger diameter piston rods for the following:

Air Cylinder Models A82, 84, and 86 with strokes inside area (1), when operated at 100 psi and over;

All hydraulic models with strokes inside area (2) and Models H82, 84, and 86 with strokes in area (4), when operated at 2000 psi and over;

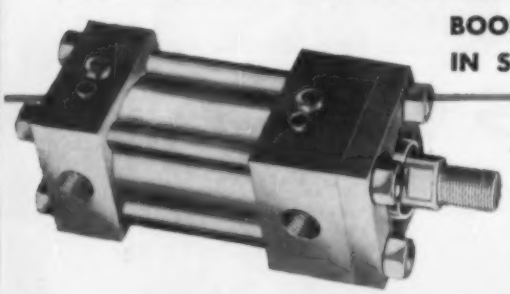
Models H82, 84 and 86 with strokes inside area (3), when operated at 1000 psi and over.

Depending upon Trunnion Pin location, "A" and "H" Models 83 with standard diameter piston rods can have longer strokes than Models 82, 84 and 86.

See Miller File #251 for oversize piston rod and stop tube requirements.

## BOOSTERS IN STOCK

Immediate Delivery on the following Miller 25 to 1 Ratio Boosters (80 psi air input produces 2000 psi hydraulic oil output): Model B4, 5" bore, 1" dia. ram, 6" and 12" strokes; Reciprocating Booster Model DA77-RBA8, 5" bore, 1" dia. ram, 6" stroke. Also Booster Tanks, 5" dia., 6" and 10" heights.



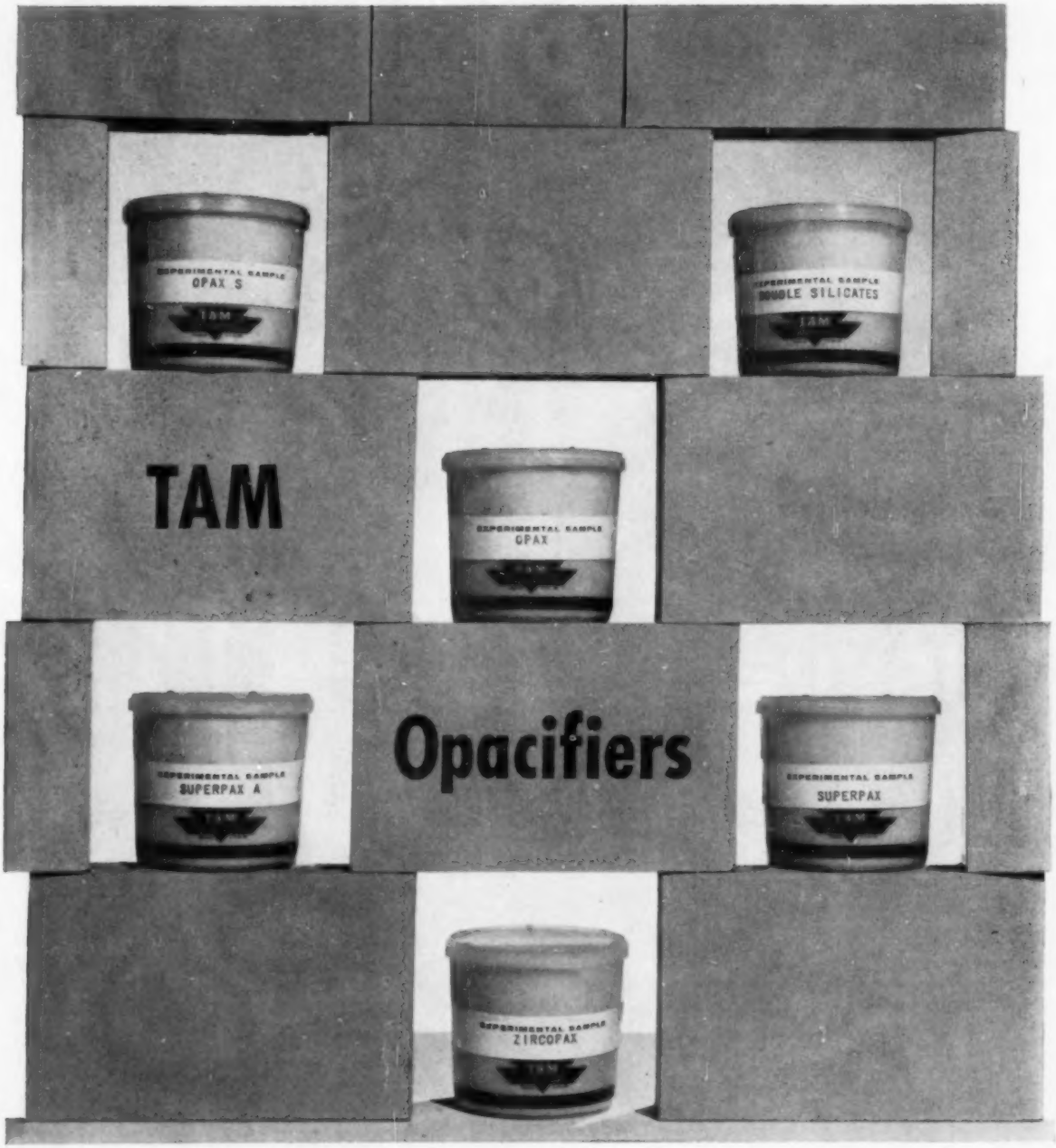
*Write For Catalog and Stock Price List*

Miller

**MILLER FLUID POWER DIVISION**
FLICK-REEDY CORP.

**2013 N. Hawthorne Ave., Melrose Park, Ill.**

AIR & HYDRAULIC CYLINDERS • BOOSTERS • ACCUMULATORS
COUNTERBALANCE CYLINDERS




## . . . the choice of brick and tile makers

From this complete selection of TAM Zirconium opacifiers, manufacturers of glazed brick and tile can specify the right ones for any particular job requirement. Each has its own advantages in producing opacity, color uniformity or modification, texture control, efficiency and economy. All are produced to highest standards of purity and particle size.

To guide your selection, may we send you trial samples and/or literature. Write our N.Y.C. office.

**TAM PRODUCTS**
Registered U. S. Pat. Off.

**TITANIUM ALLOY MFG. DIVISION**
**NATIONAL LEAD COMPANY**

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# BCR's 1957 all NEW BLUE BOOK

BRICK & CLAY RECORD

# BRICK & CLAY RECORD'S

# april Convention Issue

**Blue Print for Better Operation — This issue will carry more than a hundred quick, cost-saving ideas for operation personnel.**
**Blue Ribbon Clay Products Plants — Will be "toured in print." You'll read of clay pipe, refractories, brick, tile and lightweight aggregate production in complete, accurate stories.**

**Blue Chip Advertisers — The bluebloods among supplies of materials and equipment always have dominated advertising in the New Blue Book. More of them than in any other ceramic publication. This is the advertising issue of the year.**

**Where True Blue Conventioneers (and stay-at-homes too) look for and find the latest and best information on this industry.**

For the Reader — it's an issue to be saved and referred to time and time again

For the Advertiser — it's an opportunity to get respected attention and prominence.

***ADVERTISERS: Act Now***

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***First Closing: March 17***

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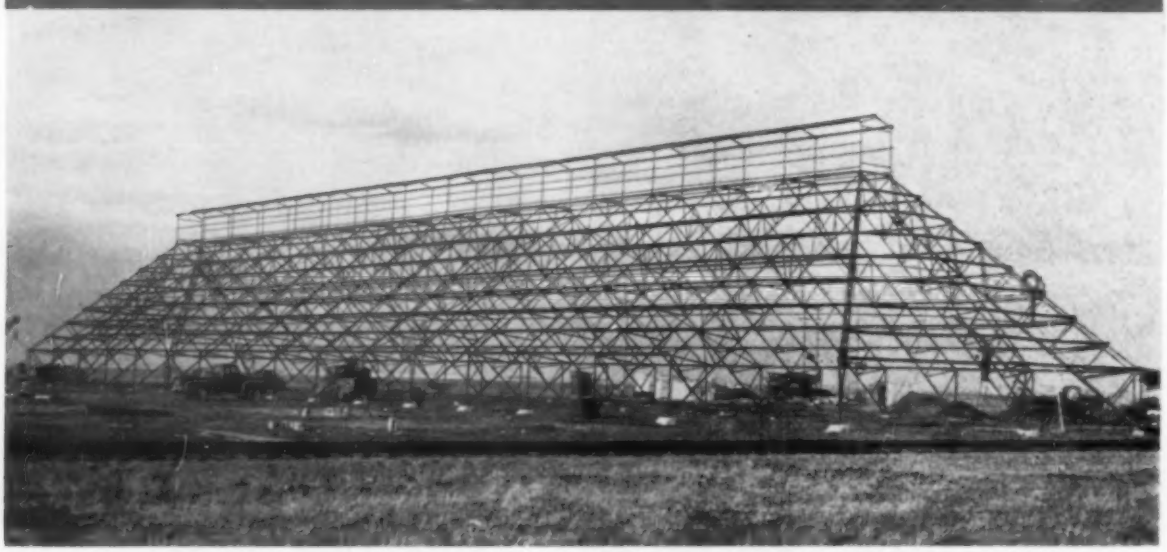
**5 SOUTH WABASH AVENUE**
**CHICAGO 3, ILLINOIS**

SUBSTANTIAL • DURABLE • FIRE PROOF

PREFABRICATED

Pipe STRUCTURES

FOR THE BRICK AND TILE INDUSTRY



Clay Shed for Western Clay Products, Ltd., Regina, Saskatchewan, Canada

Speedily Erected, Our Construction is Completely Flexible
Adapted to Your Individual Needs

Ask Any of Our Satisfied Customers

CLAY STORAGE SHEDS KILN BUILDINGS MACHINE BUILDINGS STOCK SHEDS GRINDING ROOMS

R. G. VARNER STEEL PRODUCTS, INC.

PIPE FABRICATORS • STEEL PRODUCTS

PINE BLUFF, ARKANSAS

POST OFFICE BOX 781 PHONE JEfferson 4-6030

Fast D Tournapull, owned by Texas Lightweight Aggregate Co., gathers speed leaving processing plant for 1-mi. trip to loading area. This one "D" — plus crawler-mounted front-end loader, and a tandem-disc plow — replaced a fleet of 4 tractors and 2 towed scrapers.

# At Haydite plant, one "D" replaces hauling fleet

## moves same quantity in 1/3 less time!

*Haydite is the tradename for lightweight expanded clay and shale aggregate, manufactured by Texas Lightweight Aggregate Company at the Stafford, Texas plant a few miles southwest of Houston. Black clay is broken up into marble-sized chunks, heat-expanded in rotary kilns, then cooled. The rock-hard finished aggregate is sold to ready-mix plants and manufacturers of concrete products for lightweight concrete and masonry units.*

To keep its Rotary Kiln Haydite aggregate plant in Stafford, Texas, supplied with black clay, Texas Lightweight Aggregate Company, a division of Texas Industries, Inc., relies on one D Tournapull and a crawler-mounted front-end loader with tandem-disc plow. The "D" — working 16 hrs. daily — replaces 4 slow-speed tractors and 2 towed scrapers that worked around the clock to supply plant at the same rate.

The clay used is plastic, and very dense . . . hard as a rock when dry . . . soft and slippery when wet. The trick is to excavate it with just the *right* moisture balance — then haul direct to kilns or stockpile it in a sheltered area for future use. Condition of clay deposits at any given time depends on the weather of many preceding days and must be disced properly to maintain proper moisture for special loading.

### Hauls over 2 to 4-mi. cycles

Sometimes, when stockpiles run low, a large amount of clay must be moved in a few hours to supply the kilns. Strip-mine areas are about a mile from the processing plant. Because good-sized yardages have to be loaded and moved fast, Texas Lightweight Aggregate finds Tournapull just the right machine. Working alone, "D" handles a job that previously required many machines.

### Single Tournapull supplies materials

Total excavation, loading, pit-to-stockpile hauling, and dumping on shed, is handled by this single Tournapull. Rig self-loads as much as 6½ loose yds. per trip . . . hauls up to 1 mi. to stockpile sheds at speeds to 29.5 mph.

### Spreads in tight quarters

Dumping at the plant involves careful maneuvering. The stockpile is next to the kilns, under a large shed. Turning space is restricted. The "D" frequently has to climb up and dump over previous stockpiles, with limited overhead clearance. 90° turn, electric power-steer through geared king-pin lets this LeTourneau-Westinghouse earthmover maneuver easily into the shed . . . spread . . . and swing out for another load in seconds.

"They turn fast and they're maneuverable," commented Richard Messer, Stafford Plant Superintendent. "They get out quick and back quick — both on the pick-up and spread, that differential helps us work good in mud during wet weather."

### Get facts for your type work

If your earthmoving operations require steady production, plus hauling over a considerable distance, it will pay you to investigate the advantages of the 9-yd. D Tournapull, or the larger 18-yd. "C" or 25-yd. "B" sizes. Let us show you owner-verified facts on Tournapull production for *your* type of work.

"D" turns as it dumps on clay stockpile. In another 10 seconds, rig will be returning at high speed to loading area.

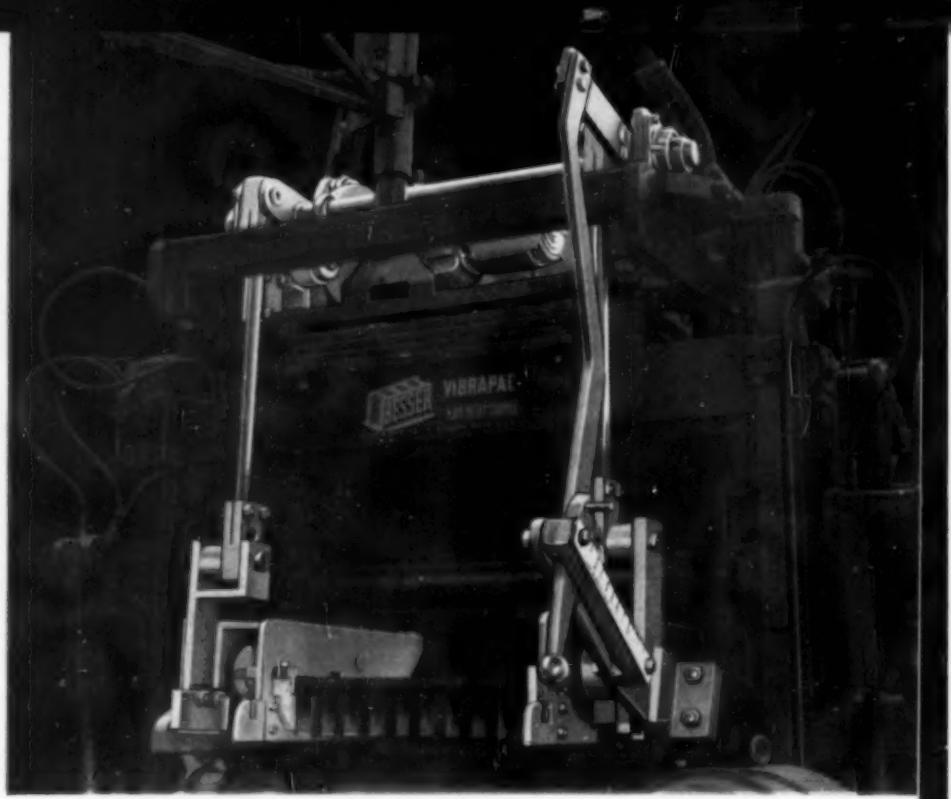
Tournapull—Trademark Reg. U.S. Pat. Off. DP-1051-M-b

**LeTourneau-WESTINGHOUSE Company,** PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*

WHERE QUALITY IS A HABIT

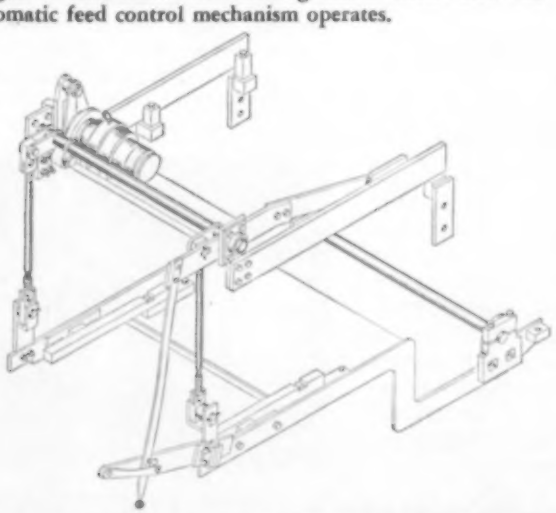
CONTROL PANEL, with 10" dial indicator. Shows at a glance the exact finish time in seconds and fractions of a second. Panel includes feed and finish time setting — and selector switch for either hand or automatic operation.




# AUTOMATIC FEED CONTROL...

## *Another Besser Contribution to the Concrete Block Industry*

You want all your block to be of uniform quality. Then it's important to maintain uniform finish time in producing the block. The New Vibrapac provides a visible means of controlling quality. You can actually see the seconds... even fractions of a second... consumed in vibration and the length of feed time. The drawing below shows how the automatic feed control mechanism operates.



## Here's how you benefit from the New BESSER Automatic Feed Control:

1 **Consistent Production.** The machine speed is kept constant due to automatic compensation for irregular feed or mixture control. Feeding by "guess" is eliminated.

2 **Quality Controlled Block.** Automatically adjusts amount of feed to the mold, assuring uniform finish time and high quality block.

3 **Less Material Waste.** Controls density of block. No overweight or underweight units. Every block is made to a specified predetermined amount of concrete.

4 **Less Supervision Required.** The electric brain does the "thinking"... controls the amount of feed for constant uniformity of all types of units. Supervisor merely checks the larger indicator dial to see that quality is being maintained.

• • •

The new Besser Automatic Feed Control mechanism will enable every block maker to produce BETTER block even FASTER. Get the facts! Contact your nearby Besser representative.

A 56—183

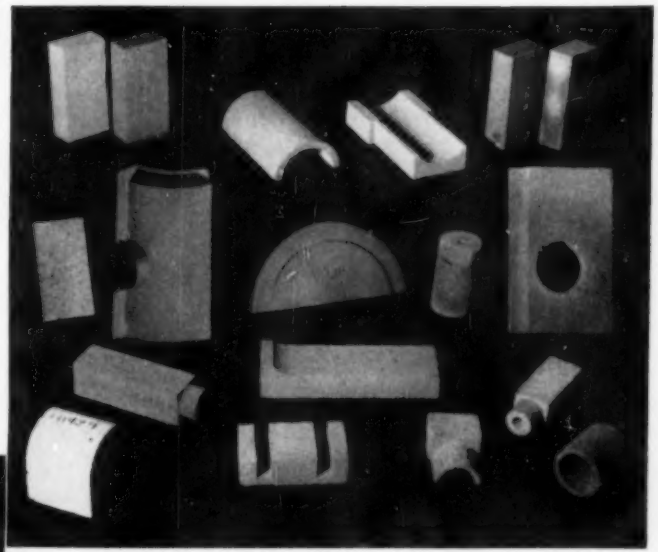
**BESSER COMPANY**

*First in Concrete Block Machines*

BOX 139 • ALPENA, MICHIGAN, U. S. A.

# LANLY OVENS

## Reduce CORUNDITE REFRACTORY DRYING TIME by More Than 40%



CORUNDITE REFRACTORIES, INC.
SINCE 1892
CORUNDITE
MASSILLON, OHIO

June
3,
1954

Lanly Company
750 Prospect Ave.
Cleveland 15, Ohio

Attention: Mr. James A. Lyle

Dear Jim:

We installed your first dryer unit at our Massillon plant for humidity controlled drying of special shapes, both fire clay as well as insulating refractory varieties.

This unit worked out so well that we installed the second unit for still larger tile and shapes. On these two units our drying time was reduced better than 40%. Green losses dropped to almost nothing and a considerable improvement was noted in firing as well as in the finished product.

After experiencing such favorable results on these two units, we then decided to install LANLY dryers on our entire production at both Massillon and Zoar, Ohio, plants.

We are extremely well pleased with the results the LANLY dryers are giving us not only because of the faster cycles and reduction of drying losses but also the excellent drying that is being accomplished has a considerable part to play in improving firing operations as well as improved quality, along with a reduction in cost of operation throughout.

Yours very truly,

CORUNDITE REFRACTORIES, INC.

E. L. Custer

E. L. Custer

ELC:GE

LANLY ovens and dryers have done and are doing an excellent job on the production lines in the plants of CORUNDITE REFRACTORIES, INC.

The marked curtailment of operational costs and reduction in the drying time of refractory and insulating products with a minimum of rejects, led to the purchase of nine additional LANLY installations.

Year in and year out, repeat orders by leading manufacturers in all fields of industry are strong evidence of the nation-wide acceptance of LANLY Products and Services.

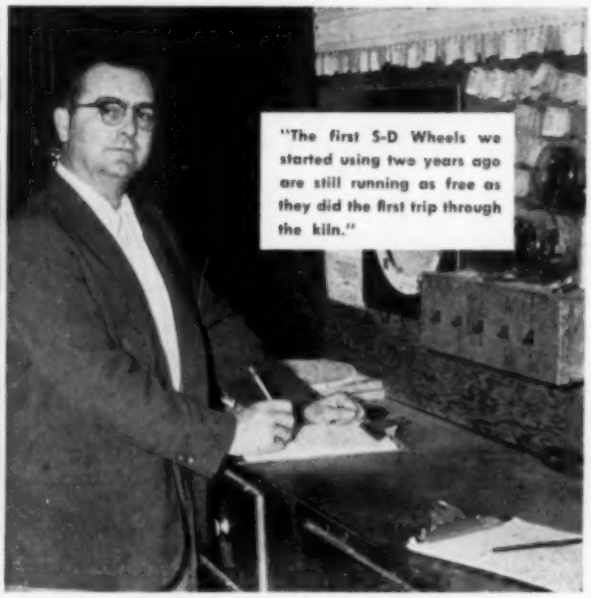
**YOU, TOO, CAN DO A BETTER JOB WITH LANLY OVENS.**

***... Write Today for Details and Let Us Show You How!***

LANLY
CERAMIC OVENS and DRYERS
THE LANLY COMPANY • 767 PROSPECT AVE
CLEVELAND, OHIO

# "We are very pleased with our S-D Kiln Car Wheels"

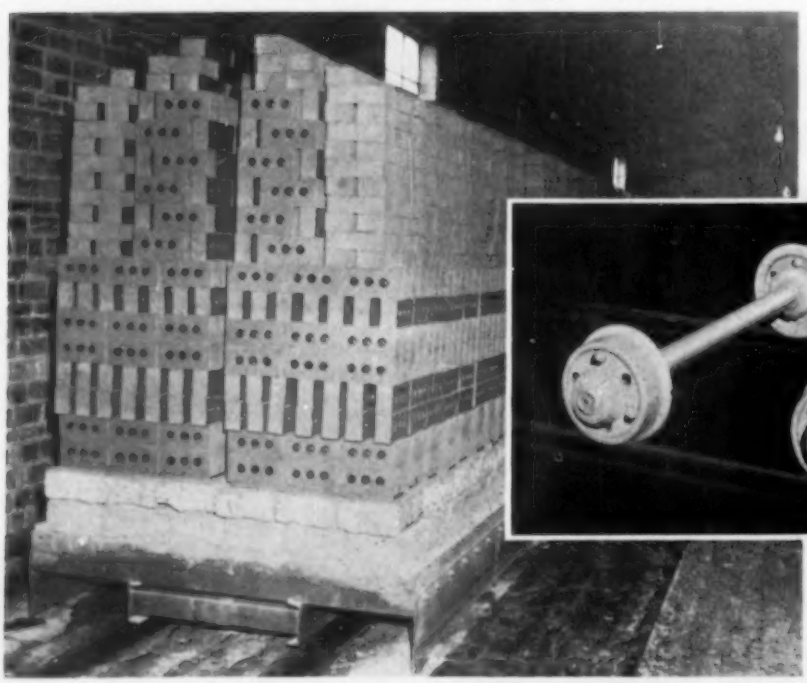
## . . . says Mr. C. B. Foushee, Sanford Brick & Tile Co., Sanford, N. C.



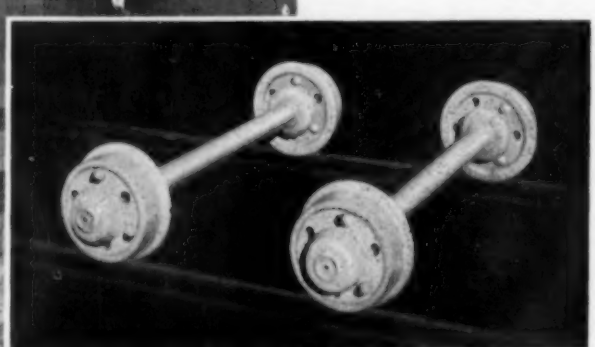

SANFORD BRICK AND TILE CO. is one of the scores of brick plants all over the nation recognizing the smooth running, low maintenance values of S-D "Floater" Kiln Car Wheels. Now you can eliminate conventional kiln car wheels and their costly everyday maintenance and lubrication by installing S-D "Floater" Wheels on your cars.

The new improved S-D Kiln Car Wheels runs free and easy, eliminates high cost maintenance and lubrication. Shown below is a car set of S-D Ball Bearing kiln car wheels and axles. Note that the outer hub of the wheel is completely closed. The inner hub is protected by two metal grease seals. This feature effectively eliminates dust while retaining the special high temperature lubricant.

Ask us for complete information on this revolutionary S-D "Floater" Ball Bearing Kiln Car Wheel. *Sanford-Day Iron Works, Inc., Knoxville, Tenn.*



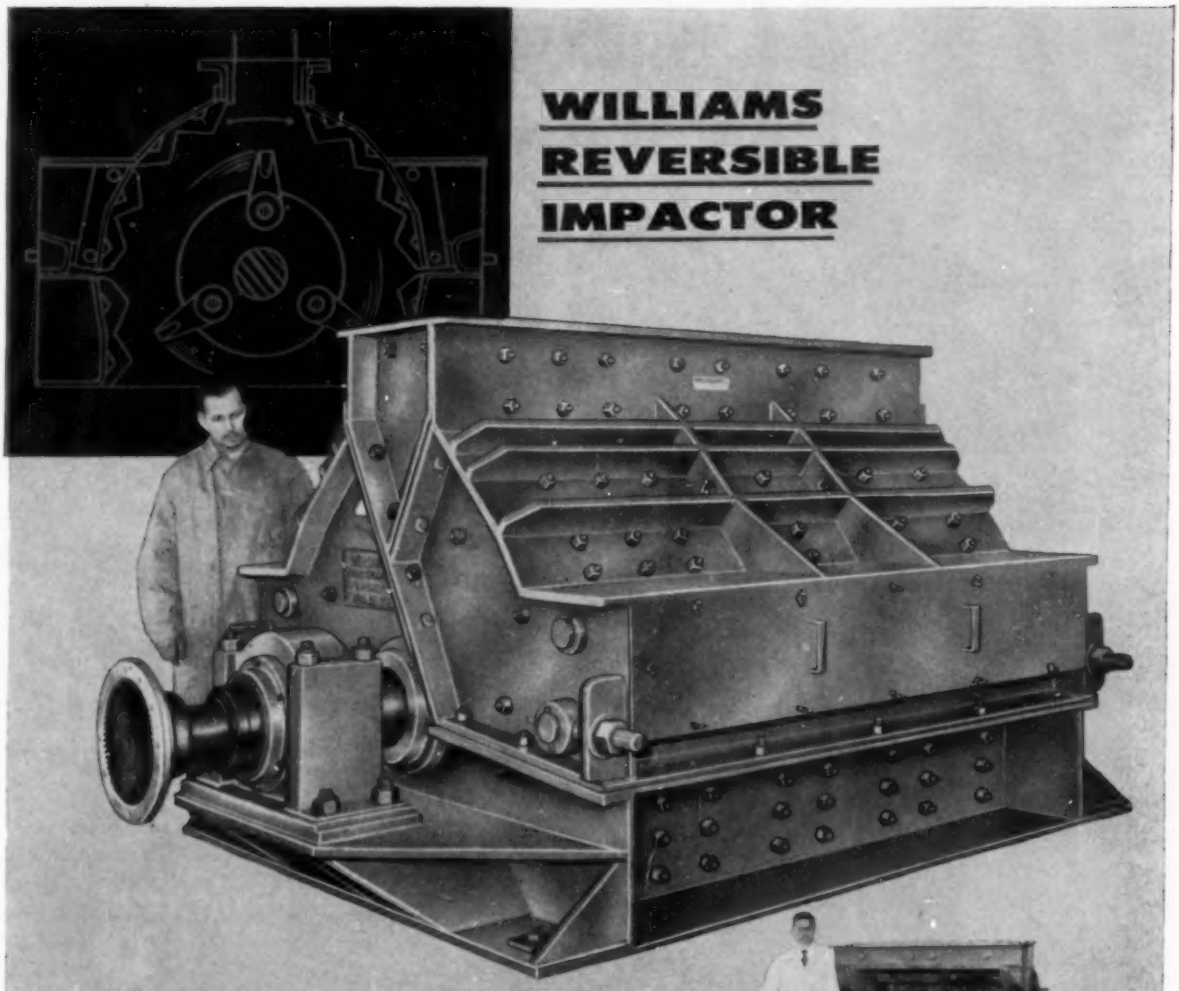
At left is shown a loaded Sanford Brick and Tile Co. Kiln Car equipped with S-D "Floater" Wheels . . . one of the car sets of wheels in service for two years and "still running as free as they did the first trip through the kiln."



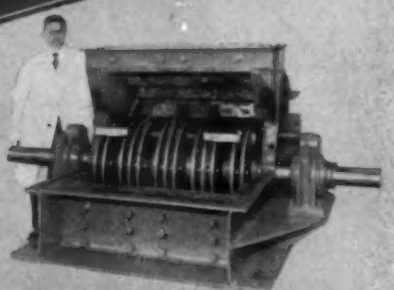
SANFORD-DAY

KNOXVILLE TENNESSEE

# WILLIAMS REVERSIBLE IMPACTOR



- 100% Impact Reduction
- No Friction Or Abrasion
- Unobstructed Discharge
- Less Upkeep Expense

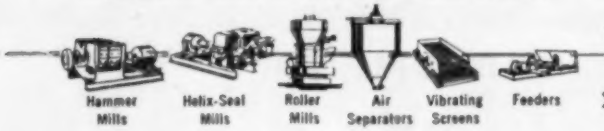


Internal view showing manganese steel impact blocks, hammers and liners. Rugged, heavy steel plate construction. Extra large shafts are mounted in oversize bearings sealed in self-aligning housings.

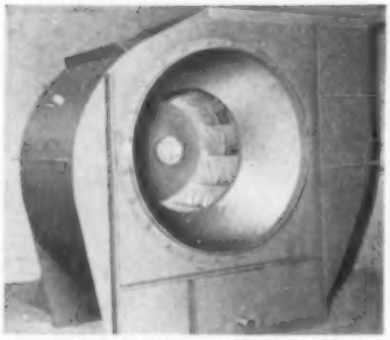
## Lower Cost Crushing And Grinding

Will reduce clay and shale direct from the bank to 8, 10 mesh, or finer, for burned ware. Reduces its own screen tailings. 100% impact action permits reduction of abrasive materials with lower upkeep expense. Material falls *between* the hammers which throw it against the impact blocks, setting up a repeated ricochet action and the reduction is entirely by impact with no wearing, abrasive, grinding action thereby lessening wear on parts. Hammers can be rotated in either direction, rotated to the right today, to the left tomorrow thereby giving double hammer life. Impact blocks adjustable for wear and fineness of product. Finished material is discharged freely which further lessens upkeep expense. A size for every job. Describe your work and let us tell you about one for your use.

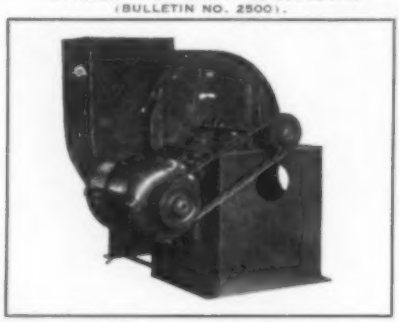
**WILLIAMS PATENT CRUSHER & PULVERIZER CO.**
2709 North Broadway — St. Louis 6, Mo.



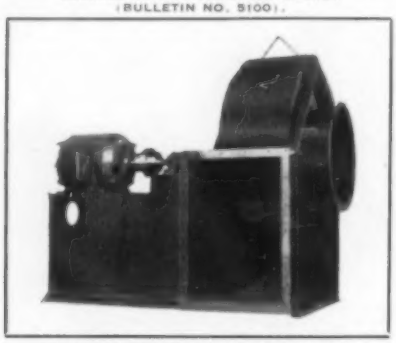

WILLIAMS
CRUSHERS GRINDERS SHREDDERS
*Oldest and Largest Manufacturers of Hammer Mills in the World*



ROBINSON TYPE J BACKWARD CURVE FAN (BULLETIN NO. 2500).



ROBINSON TYPE AE-6-BB EXHAUSTER (BULLETIN NO. 5100).



ROBINSON TYPE H BACKWARD CURVE FAN (BULLETIN NOS. 2101 AND 3202).

The prestige line of

*Engineered*

**AIR-HANDLING**

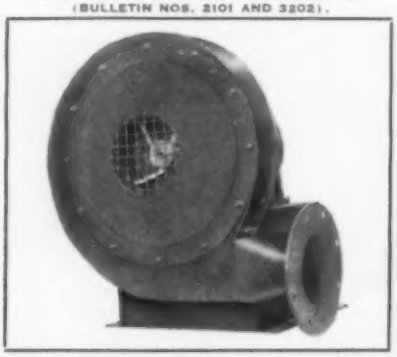
# ROBINSON

## FANS for 1957

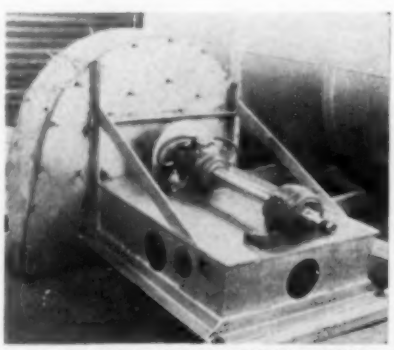
There are Robinson Fans for every type of Ceramic Kiln and every type Ceramic Dryer.

Each is engineered to meet the exacting demands for present and future requirements—designed with "built in" economical and efficient operation.

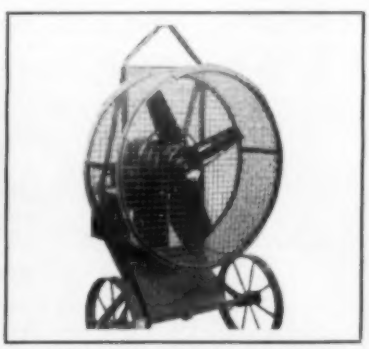
For lasting economy, review all your air handling problems with Robinson Engineers — Use Robinson Fans..



SPECIAL AE-6 EXHAUSTER FOR HIGH TEMPERATURE RECIRCULATING SYSTEMS. FABRICATED THROUGHOUT WITH HEAT RESISTANT ALLOY.



ROBINSON TYPE CS PRESSURE BLOWER (BULLETIN NO. 1100).



ROBINSON SULKEY TYPE COOLING FAN (BULLETIN NO. 8001).

STRENGTH AND QUALITY

**ROBINSON VENTILATING CO.**

**ZELIENOPLE, PA.**

# Make Brick Handling an Easy Job

# PRIESTER BRICK FORKS

**Priester Crane Fork in use at Yankee Hill Brick Co., Lincoln, Nebraska**

**FOR CRANE**

Brick in units of any size are handled by Priester Brick Forks. Automatic operation is one of their features which simplifies and speeds brick handling.

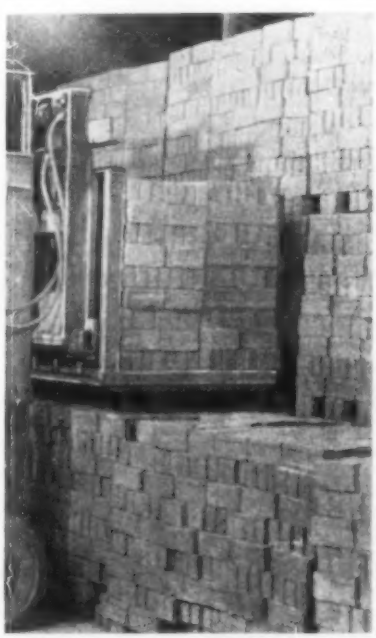
Priester forks are successfully setting and drawing kilns, loading and unloading trucks and box cars.

For cored and solid brick Priester furnishes forks with flap grippers.

"These forks give good service . . . take the hard work out of brick handling."

- SAVE TIME
- SAVE MONEY
- SAVE LABOR

Write today for more information—Ask for Bulletin LF51 covering Lift Truck Forks; and Bulletin CF52 for data on Crane Forks. We also make the Priester Truck Crane for unloading from delivery trucks; for information, ask for Bulletin TC 53.

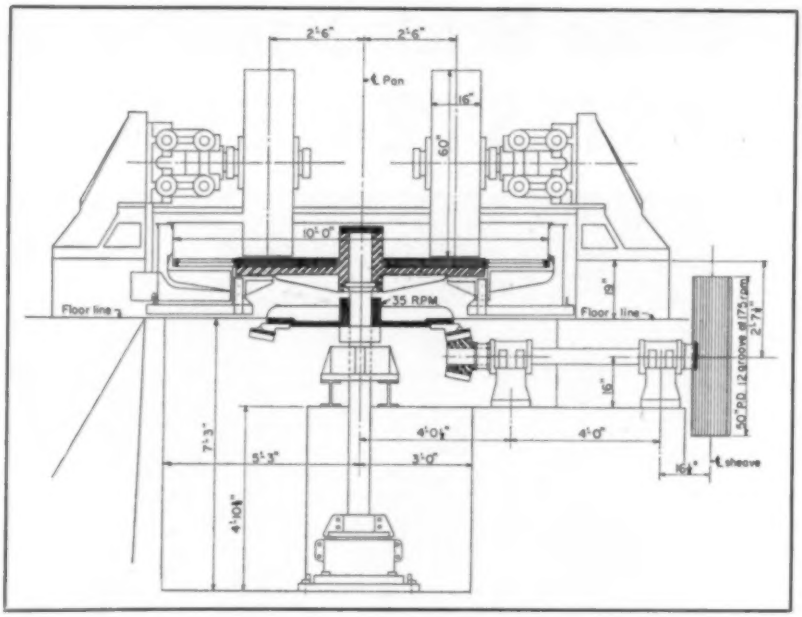


**FOR FORK LIFT**

Priester Lift Truck Fork on the job at Glen-Gery Shale Brick Corp., Wyomissing, Pa.

## BRADNEY MACHINE CO., INC. MIDDLETOWN, NEW YORK

# New Series of Dry Pans and Rim Discharge Grinders




**The Toronto Foundry & Machine Company takes pleasure in announcing a new series of dry pans and rim discharge grinders in 9 and 10 foot sizes. Our friends in the brick and sewer pipe industries who have benefited from using our pans in the past will be especially interested in this news. These new machines are the net result of many year experience and many recommendations from our customers. We intend to maintain the same quality of material and workmanship in these machines as we have in the past. Your inquiries will be welcomed and prices will be gladly quoted on request. We also offer our engineering facilities in helping our customers plan installations.**

## FEATURES OF SPECIAL INTEREST

### 1. Knee-action mullers.

This engineering feature has been amply proven in the automotive field in both automobiles and trucks. In a grinding pan, these knee-action units give space-saving linkage of the mullers to the pan frame, thus keeping the entire interior of the pan open for introduction of material to be ground. Material should be introduced into the center of any pan, rather than at one side, so as to alleviate wear and tear on one scraper and one muller. This wear is caused by the first run of the material through the pan, when the pan is fed on one side. Material fed into the center of the pan is distributed evenly by a cap on the pan bottom hub. The knee-action linkage also keeps the mullers in absolute vertical alignment for best crushing effect on the material and also offers a convenient place to apply additional pneumatic loading or suspension action to the mullers. Loading or suspension of mullers may be had as original equipment or added later as conditions warrant.

### 2. Underdriven arrangement.

Anyone who has changed mullers in a pan will appreciate the uncluttered open top design of these machines. A simple overhead chain block crane on rails, which we furnish as optional equipment, can be utilized to serve any part of a single pan or a battery of pans with no interference from crossbeams or super-structures. The open design also permits easy use of a lift truck for changing parts. The pinion gear runs in an oil bath, and drippings from the crown gear are caught and returned to the oil pan. The drive space under the pan is sealed and ventilated to give freedom from dust contamination for long bearing and gear life. All bearings are friction-less type with renewable cartridge units. The step bearing is a Timken-Type self-aligning bearing which requires practically no maintenance except lubrication. This pan is idealy suited for complete dust-tight enclosure around the mullers and pan frames.

### 3. Rotating false bottom.

The false bottom is rigidly attached to and rotates with the pan bottom, and receives ground clay from the screen plates or raised rim. A single stationary scraper removes the clay from the false bottom and discharges it to a vertical elevator or horizontal troughing conveyor. A battery of these pans can be arranged to discharge onto one horizontal conveyor or each pan may have its own individual elevator.

### 4. Additional screening area.

The pan rim is slotted and acts as additional screening area. Alloy abrasive resisting steel is used in this pan rim for long life. Since the material being ground is thrown against the pan rim by centrifugal force and then scraped away by the scrapers in the pan, one can easily see that the slotted pan rim does quite a lot of screening, thus helping to keep the pan from becoming choked. Net production from "Super '60'" B-3 dry pans and rim discharge grinders varies from 40 to 75 tons per hour depending on the material being ground.

### 5. Pan is reversible.

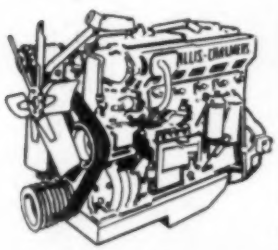
This feature is often overlooked but can mean many extra hours of service from almost all the parts in the pan.

# TORONTO
## FOUNDRY and MACHINE CO.
***Engineers, Founders and Machinists***
**Toronto, Ohio**

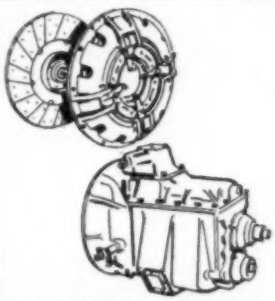
# Look at the EXTRA WORK OUTPUT

## the Allis-Chalmers TS-360 Motor Scraper gives you

**Here are some of the design features that put the TS-360 way out in front in steady performance, dependability and length of service life.**

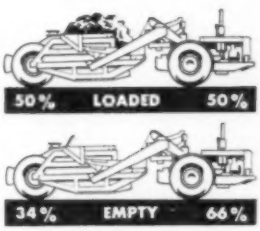


**MORE USABLE HORSEPOWER.** Allis-Chalmers diesel engine delivers 280 hp — 18.66 hp for each struck yard. This power gets the TS-360 away from the pusher fast . . . gives you speedier cycles, more trips per hour. In this engine, follow-through combustion holds effective working pressures to take advantage of better crankshaft leverage.



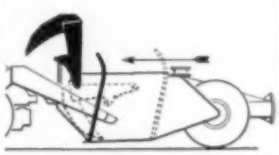
**BIG-CAPACITY CLUTCH AND TRANSMISSION** give fast, smooth operation under all job conditions. Clutch has air-actuated booster to reduce clutching effort and increase shifting efficiency. The heavy-duty transmission gives unmatched torque output in each gear range.

**EXTRA-HEAVY FINAL DRIVES** feature rugged differential assembly, carrier-housed drive shafts, final drive gears supported by large roller bearings and heat-treated drive axles. This long-life power train transmits maximum engine output for extra work volume, extra profit.

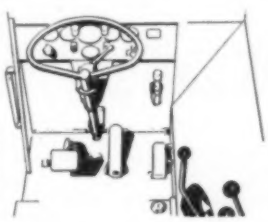



**EXTRA TRACTION.** The TS-360 motor scraper provides greater tractive effort, loading or traveling. Two-thirds of the empty weight is carried on drive wheels. Loaded weight is distributed equally between tractor and scraper wheels for better balance, increased flotation, safer hauling.

**EASY-LOADING BOWL.** Wide, low bowl design with curved bottom and offset cutting edge assures full capacity loads in less time. Curved bowl bottom "boils" dirt in, filling corners, heaping load with less spillage.



**CONTROLLED DUMPING ACTION.** Forward movement of ejector forces out load. High apron lift prevents material from jamming. This combination provides a continuous flow of material for a smooth, even spread.



**POSITIVE STEERING.** Two-stage selective power steering makes the operator's job easy . . . provides safe, feather-touch response and full maneuverability whether traveling at high speeds or in cut or fill.

**OPERATOR CONVENIENCES** add to production, too. Easy-to-reach controls, full visibility, four-wheel air brakes, roomy platform, comfortable air-foam seat are some of the features that help operator get maximum output from the TS-360.

*More and more TS-360's are coming into your area every day. Ask your Allis-Chalmers construction machinery dealer where you can see them in action. Remember, too — your Allis-Chalmers dealer stocks True Original Parts and offers factory-approved service methods and factory-trained servicemen for your convenience.*

ALLIS-CHALMERS CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

**ALLIS-CHALMERS**

# Triple Car Block Life with REMMEY SKC Blocks

Front kiln car shows cracked car blocks. These were the best blocks ever used up to the introduction of Remmey SKC Car Blocks.

Next kiln car has Remmey SKC Blocks. Both cars have had same amount of service. A glance will show you the striking difference . . . the absence of cracking and crumbling.

The full life span of Remmey SKC Blocks is still unknown, though many are still in use after lasting *3 times* as long as best previous life.

Order SKC Car Blocks and enjoy outstanding economy.

**RICHARD C. REMMEY SON CO.**
**PHILADELPHIA 37, PENNA.**

January, 1957 Vol. 130, No. 1

5 SOUTH WABASH AVE.
CHICAGO 3, ILL.
STate 2-1374

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now in 65th year.

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***Ceramic Engineering Staff.**

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**BRICK AND CLAY RECORD** is indexed by Engineering Index, Inc.

# CAN YOU HANDLE 70% MORE BUSINESS?

Norman H. Strouse, president of J. Walter Thompson Co., advertising agency, recently said, "the very least we may expect by 1965 . . . is a 70% increase over the advertising volume of this past year."

Benson Ford made a statement to an automobile dealer convention that it was reasonably certain we would have 60% to 70% greater markets in the next decade and then asked the dealers:

"Can you handle 60 to 70% more business with your present facilities?"

"How about working capital?"

"Can you finance that much more business with present working capital?"

He might also have asked "Where are you going to get the trained personnel to sell and service this additional volume?"

These are questions that we all must face whether in advertising, selling or brick manufacturing.

There is no reason to believe that the brick business will not also be 60% to 70% greater in volume by 1965 and will face all the problems of adding facilities, money and manpower.

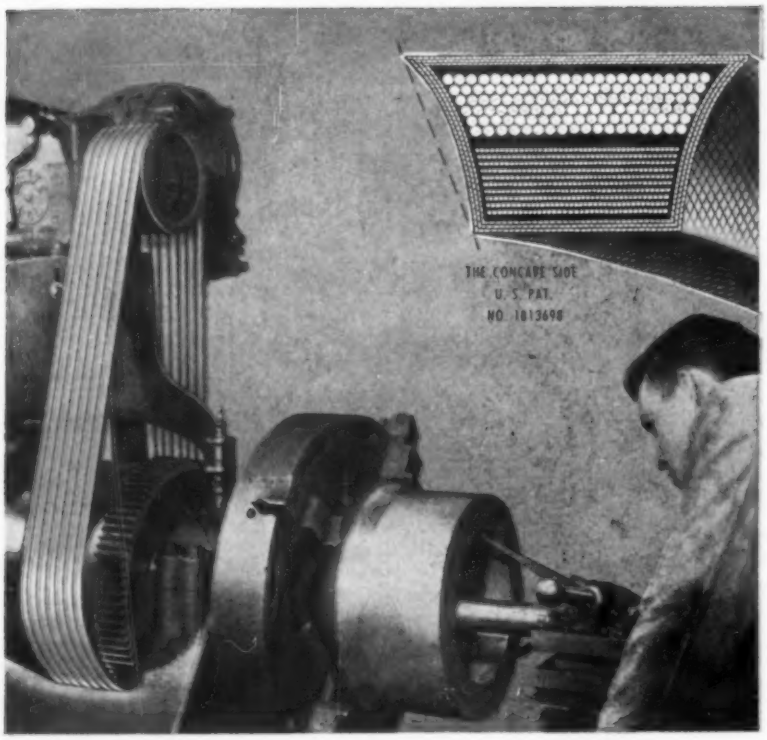
This is no time to be squeamish about expansion or promotion. Consumption of clay products will continue to press production even though there will be small swings back and forth from the straight line of increased demand.

Your chance for more business will come, but it won't come by itself. These predictions are only a 50% increase in opportunity but there's no guarantee on orders. Other products are already competitive and there'll be others to compete as the market expands.

Besides the desire to sell brick, we must keep our products modern through research, keep our plants efficient with modern equipment, and we must promote our products through aggressive advertising.

If the brick industry wants the increased market, it must care for it and develop it, just as carefully as you maintain your equipment and replace it when necessary for efficient operation.

**The Editors**




# WHY you get more service from V-Belts with concave sides

Each sidewall of a Gates V-belt is concave (Fig. 1) — a precisely engineered curve that makes V-belts last far longer.

**HERE'S WHY:** on the bend around the sheave, the concave sides of a Gates V-belt fill out and become straight (Fig. 1-A). Thus the belt makes full contact with the sides of the sheave, grips the sheave *evenly*.

This even contact distributes wear uniformly across the sides of the belt. Uniform wear lengthens belt life; keeps costs down.

MAKE THIS SIMPLE TEST

Bend a straight-sided belt (Fig. 2). The sides bulge at the bend causing uneven contact in the sheave groove (Fig. 2-A). Naturally, wear is greater at points indicated by arrows. Result: shorter belt life, increased belt costs.

To cut down-time and V-belt replacement costs, specify belts that grip evenly and wear longer. Specify Gates Vulco Rope — the V-belt with concave sides. The Gates Rubber Co., Denver, Colorado — *World's Largest Maker of V-Belts.*

*There are Gates Engineering Offices and Distributor Stocks in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.*

TPA 109A

Gates

# Gates Vulco Rope Drives

## New Virginia Solite Plant Begins Construction

The Virginia Solite Corp. plant at Leaksville Junction, near Danville, is now officially under construction. Ground was broken on Dec. 10, as shown in the accompanying photo.

Mayors and officials of nearby towns attended the ground-breaking ceremonies, along with A. F. Old, general production manager of Southern Lightweight Aggregate Corp.; W. F. Foster, assistant manager of the new plant; W. G. Shumaker, plant superintendent, and R. C. Jones, office manager.

Addition of the Danville plant will bring Southern Lightweight production to more than 1 million cu. yds. yearly.

At the same time as the ceremonies, Old announced the promotion of John Bragg to assistant superintendent of the Solite plant at Bremo Bluff, replacing Shumaker.

Further details on the new plant appeared in the December issue, page 34.

## AGC Predicts 1957 Construction of $64 Billion

Total construction in 1957 will reach about $64 billion volume for a 12th consecutive record according to a prediction by the Associated General Contractors of America.

The association expects that housing will decline further. However, total new construction should total $47 billion with modernization and repair activity moving up to $17 billion. AGC estimated 1956 construction at $60 billion the report said.

For another forecast of construction, see Robinson Newcomb's story on page 85 in this issue.

## Georgia Lightweight Adds Third Kiln

Despite being in production only three years, the Georgia Lightweight Aggregate Co., Rockmart, is underway with the installation of a third kiln, with production scheduled to start by early 1957.

Otto C. Frei is president of both the Georgia company and newly elected head of the Expanded Shale, Clay & Slate Institute.

# NEWS OF THE INDUSTRY

## New SCPRF Officers Eelected

SCPRF Research Director Robert B. Taylor is shown with Chadwick N. Heath of General Shale Products Corp., and Roy A. Shipley, re-elected SCPRF chairman.

### Shipley Re-Elected SCPRF Chairman

The 1956-57 officers and board of management of SCPRF were recently elected with Roy A. Shipley re-elected chairman.

William A. Crossan, of Metropolitan Brick Co., was elected vice-chairman. Harry C. Plummer, SCPI, was renamed secretary; A. C. Frisk, Mason City Brick & Tile, was elected treasurer.

Following is the list of the 1956-57 board members:

**REGION 2:** Henry Abreu, Jova Brick Works, Roseton, N. Y.; and Harry Weinberg, East Kingston Brick Co., Hoboken, N. J.

**REGION 3:** Charles E. Alwine, Alwine, Brick Co., New Oxford, Pa.

**REGION 4:** Paul B. Belden, Jr., The Belden Brick Co., Canton, Ohio; William A. Crossan, Metropolitan Brick, Inc., Canton, Ohio; and Phillip W. Tefft, The Claycraft Co., Columbus, Ohio.

**REGION 5:** Carl H. Bach, Tuthill Building Materials Co., Chicago, Ill.; C. E. Carter, Peoria Brick and Tile Co., Peoria, Ill.; and L. S. Meyer, Hydraulic Press Brick Co., St. Louis, Mo.

**REGION 6:** A. C. Frisk, Mason City Brick & Tile Co., Mason City, Iowa; and M. C. Madsen, Twin City Brick Co., St. Paul, Minn.

**REGION 7:** John H. Isenhour, Isenhour Brick & Tile Co., Salisbury, N. C.; and F. F. Steele, Jr., Pine Hall Brick & Pipe Co., Winston-Salem, N. C.

**REGION 8:** John S. Herbert, W. G. Bush & Co., Nashville, Tenn.; and W. S. Sells, General Shale Products Corp., Johnson City, Tenn.

**REGION 9:** Richard H. Bickerstaff, Bickerstaff Clay Products Co., Columbus, Ga.; Kenneth W. Dunwody, Cherokee Brick & Tile Co., Louisville, Ky.; and Kenneth H. Merry, Merry Bros. Brick & Tile Co., Augusta, Ga.

**REGION 11:** T. J. Butler, Elgin Butler Brick Co., Austin, Texas; J. B. Edwards, Reliance Clay Products Co., Dallas, Texas; and J. E. Fender, Acme Brick Co., Fort Worth, Texas.

**REGION 12:** Ralph J. Welte, Summit Pressed Brick & Tile Co., Pueblo, Colo.

**REGION 16A:** James B. Crawford, Kraftile Co., Niles, Calif.

**REGION 16B:** John W. Rice, Jr., Union Brick Co., San Diego, Calif.

**REGION 17:** Neal R. Fosseen, Washington Brick and Lime Co., Spokane, Wash.

**Representing the Facing Tile Institute:** Roy A. Shipley, Natco Corp., Pittsburgh, Pa.; John H. Stewart, Stark Ceramics, Inc., Canton, Ohio; and Claude F. Wiseman, West Virginia Brick Co., Charleston, W. Va.

**Representing Architectural Terra Cotta Institute:** George A. Berry, III, American Terra Cotta Corp., Crystal Lake, Ill.

**Canada:** R. K. Robertson, The Laprarie Co., Montreal, Canada.

**Members At Large:** I. R. Cline, Western Brick Co., Danville, Ill., C. M. Shafer, Stone Creek Brick Co., Stone Creek, Ohio; and C. W. Planje, Gladding, McBean & Co., Los Angeles, Calif.

### Sales, Profits Largest In Dickey History

All six plants of W. S. Dickey Clay Mfg. Co. operated at capacity during their fiscal year ended October 31.

The company sold all its production and had to purchase products from other companies to fill orders.

New additions placed in operation have increased production from 250,000 to 300,000 tons a year.

Immediate business prospects, while favorable, indicate a trend to more normal levels, according to president H. P. Wilhelmsen. He reports less demand for small pipe due to a slowdown in new home construction. Demand for large size pipe for municipal use is well ahead of 1955.

New buildings and equipment for the manufacture of a polyvinyl joint have been installed in three plants and similar units will be added in the other three plants according to Wilhelmsen.

Net sales for the fiscal year were $10.7 million compared with $9.9 in 1955. Net income was $1.1 million or $4.02 per share, compared with $854,972 and $3.11 in 1955.

### Brighton Brick Co. Adds Modern Equipment

Plans and installations are nearing completion for a new ground clay tempering system, including pug mill, screw conveyor, and elevators, at the Brighton Brick Co., of New Brighton, Pa., subsidiary of American Fire Clay & Products Co., Canfield, Ohio.

All of their coal-fired periodic kilns are equipped with forced draft using a system of their own design and installation. The company manufactures #1 quality ladle brick in many sizes and shapes.

Plant supervisors are William Strang, assistant manager and Boyd Anderton, superintendent.

### Natco 1956 Earnings At All-Time High

R. A. Shipley, president, reports that earnings of Natco Corp., Pittsburgh, will be the highest in company history. Natco sales in 1956 are estimated at $20,877,000, up from a 1955 figure of $20,446,082. Earnings are expected to rise to $2.75 per share from $2.27.

Shipley states that the figures reflect growth in all Natco divisions. Production will be resumed shortly at the Aultman, Ohio, conduit plant by about February 1, again bringing Natco operations to capacity. Shipley expects 1957 business to be "similar to this year."

# NEWS OF THE INDUSTRY

### $1 Million Plant Planned at Wadsworth

Work has begun on a $1 million brick plant for Wadsworth (Ohio) Brick & Tile Co., which when completed will operate with the present plant.

Harold B. Epler, president of the General Clay Products Co. and Wadsworth B&T, said the new facility will be a tunnel kiln operation with an annual capacity of 40 million brick.

First section of the plant will be in operation about May 1 with complete construction expected to take about a year. Oscar V. Reidenbach is general superintendent for plants of General Clay, of which the Wadsworth plants are affiliates. Abe Mast is superintendent of the Wadsworth B&T plant.

### Coral Ridge Considers Tunnel Installation

Coral Ridge (Ky.) Brick & Tile Corp. is reported to be considering installation of a tunnel kiln, according to R. W. Sells, Jr., plant manager.

The Coral Ridge firm was purchased by General Shale Products Corp. last year and has undergone considerable modernization. Production has been increased from 150,000 weekly to 225,000 with employment increased by 25.

The tunnel kiln would give the plant an added capacity of 100,000 weekly. A natural gas line to serve the plant was installed recently.

### Cannon Clay Products To Add Two Kilns

Ceramic Building & Equipment Co. has begun construction on two 30 ft. downdraft kilns for the Cannon & Co. Clay Products plant at Sacramento, Calif.

The present production schedule calls for completion within 60 days, with an end date of approximately February 19.

### U. S. Steel To Add 1.3 Million Tons in Chicago

U. S. Steel is planning two programs in the Chicago area aimed at adding 1.3 million ingot tons of capacity, plus some finishing equipment, as part of its 1957 capital spending.

Some construction is already underway, as announced in the October issue. At that time cost of the entire expansion program in Chicago was estimated at $208,624,000 for new facilities.

The project will add 800,000 ingot tons at Gary and 525,000 tons at South Chicago. Much of the production will be in plate and wide-flange structurals.

### Mike Baker Brick Co. Purchases Conrad Brick

The Mike Baker Brick Co., Lafayette, La., has announced purchase of the Conrad Brick Factory, New Iberia, La. The reported price of final negotiations was set at $100,000.

Henry W. Busch, managing partner with the late (see below) Cyril Moresi of the Baker firm, announced that the New Iberia plant will be torn down by April 15th, to make room for a Navy base.

Plans call for building a new factory in Cade in St. Martin parish. The new factory will be ready to operate by the time the present one is demolished.

### Cyril Moresi Dies

Cyril K. Moresi, 50, died unexpectedly in early December, after the above story was written. He was a partner in the Mike Baker Brick Co., Lafayette, La.

### Hydraulic Press Declares 25c Dividend

The board of Hydraulic Press Brick Co., St. Louis, has announced the usual 25c per share dividend on common stock, payable Feb. 1 to stockholders of record Jan. 18, the same dividend as in previous quarters.

### Masonry Handling Meet Held in Denver

Modern masonry materials handling was the theme of a conference conducted by the regional masonry industry in Denver, Dec. 15. About 200 contractors from the area attended.

The conference, sponsored by Region 12-SCPI, featured talks by members of the American Institute of Architects, Associated General Contractors, and a local masonry contractor group.

Displays showed the latest masonry handling equipment and the methods of its use in construction, to reduce in-the-wall costs.

### Sewer Pipe Used For Building Beauty

Shown above and at right is a new finance building in Los Angeles, where 4" sewer pipe, glazed on the inside and the ends fettled, added greatly to the appearance with an unusual effect. Plain-end lengths of pipe were supplied by Pacific Clay Products of Los Angeles.

# Refractories for

# GLASS TANKS

# TUNNEL KILNS

# INDUSTRIAL FURNACES

**MOHITE** (5)

**A High Fired Super Duty Brick**

Recommended for checkers whole glass furnace, tunnel kiln firing zone, rotary furnace, smelters.

**BANNER** (6)

**A Super Duty Brick**

Recommended for enamel furnaces, periodic kiln, tunnel, rotary furnace, smelters.

**MISSOURI FLINT** (1)

**A Missouri High Heat Duty Brick**

Preheating zone in kilns, cooling zone, enamel furnaces, rotary furnaces, smelters.

**SAVAGE** (7)

**An Intermediate Quality Brick**

Cooling zone tunnel kiln, periodic kilns.

**DURALITE** (2)

**A High Alumina Brick**

Supplied in 50-60-70% Alumina.

**KASTITE** (8)

**Hydraulic Setting Castables from 0-3000°F.**

Here is an all around dependable product, supplied in 100 lb. bags.

**BRICKSET** (3)

**Mortars and Cements from 0-3000°F.**

Made to take it in operation and specially compounded for ease of mason's work.

**BRICKMIX** (4)

**Plastic Firebrick from 0-3000°F.**

A wide range of plastic mixes for all types of repair work and new furnace construction.

## WELLSVILLE

**FIRE BRICK COMPANY**

**Wellsville, Missouri**

For further information, clip this coupon and mail. Check particular items of interest.

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TO the layman, refractories are frequently relegated to the general classification of brick, but to producers of iron and steel, glass and non-ferrous metals, they mean much more. Haws Silica and Fireclay Refractories are used in volume daily and are essential to the production of a quality product. The manufacture of fine steel, glass, copper, aluminum or other non-ferrous metals requires skill and years of experience, together with quality materials and equipment. The same qualifications apply to making the millions of units of refractory brick produced each year in the five plants of Haws Refractories, now in their 101st year of operation. Silica Refractories and High Duty Fireclay Brick are illustrated at the upper right and below these are Pouring Pit Refractories consisting of sleeves, nozzles, runners, and other special gate brick.

**SILICA BRICK**

**FIRE BRICK**

**SLEEVES**

**NOZZLES**

**RUNNER BRICK**

**HOT TOPS**

**FIRE CLAY**

**SILICA CEMENT**

Typical operations in the several plants of Haws are shown in the pictures to the left. Reading from the top down — grinding and blending of raw materials for Silica Brick production — transfer of stiff-mud slugs to hydraulic presses for forming — view of the entry to dryer tunnels — loading of the finished product onto one of the Haws' fleet of tractor trailers — sleeves ready for truck delivery to one of the district steel plants.

# HAWS REFRACTORIES COMPANY

**JOHNSTOWN, PENNSYLVANIA**

# NEWS OF THE INDUSTRY

### Winner Chosen in Second Kraftile Patio Contest

C. W. Kraft, president, has announced that A. Iantasca of San Jose, Calif., was the winner in the 150 sq. ft. patio contest run by Kraftile Co. This is the second annual promotion for use of masonry products in home patios.

Winner in the 50 to 150 sq. ft. group was Lee Ackerman of Mill Valley.

First prize in each group is a $100 saving bond plus an amount of tile equal to that used in the winning patio entry.

### Troy Changes Name; Buchan To Be Manager

The Troy (Idaho) Fire Brick Co., recently purchased by A. P. Green Fire Brick Co., will now be called the A. P. Green Fire Brick Co. of Idaho, according to a recent announcement. The plant is being rebuilt after a fire in 1956 with production to be resumed soon.

M. A. Buchan, formerly of Green at Mexico, Mo., is to be manager of the Troy plant. John Gavin, formerly of Mexico, is in charge of timekeeping and accounting at Troy.

### Atlas Brick Charter

Atlas Brick & Tile Co., Inc., has been granted charter of incorporation listing capital stock of $1,250,000. The charter was granted at Jackson, Miss.

### East, West Railroads Given Rate Increases

Eastern railroads have been granted a 7% freight rate increase and Western roads a 5% increase, according to an announcement by the ICC. The increases were to go in effect in late December.

According to the ICC, the increases will cost shippers about $402 million a year. The latest rate hike follows a general 6% nationwide increase authorized last March.

The 7% increase covers all traffic moving north of the Ohio and Potomac Rivers and east of the Mississippi, plus traffic in the Pocahontas region, West Virginia, and most of Virginia.

The 5% boost applies to traffic west of the Mississippi.

This increase, considered an emergency one, is not figured by the railroads to be part of a separately filed bid for a 15% increase. However, the ICC has said it considers the 7% increase as a part of the 15% asked, rather than an addition to it. The eastern and western railroads plan to file an amendment to the 15% petition saying that they want it as well as the current increase.

### News From Canada

Canadian imports of clay and products skyrocketed to $36,933,000 in the first eight months of 1956 from $27,444,000 in the same period of 1955, according to Canadian government reports . . . Canadian shipments of clay and products to all foreign markets increased to $2,812,000 in the first ten months of 1956, from $2,201,000 in 1955 . . . Canadian producers sales of clay products increased to $24,922,482 in the first eight months of 1056 from $21,802,623 in the similar period of 1955 . . . J G. Phillips has retired as chief of the ceramic section, Industrial Minerals Div. of Canada's Dept. of Mines . . . William G. Marks, 59, secretary-treasurer of Building Products Ltd., died in Montreal. He had joined the firm in 1923 . . . The government reports that 2,270 brick and stone masons entered Canada as immigrants during the first ten months of 1956.

### BRAB to Study Pipe Problems for FHA

A Building Research Advisory Board study, now underway, is expected to fill an FHA need for data relevant to the use of small size (8-inch or less) residential street sewer pipe.

The study is being performed under a contract between the FHA and the National Academy of Sciences to provide criteria to aid the FHA in establishing requirements related to this subject.

Aims of the study are to determine if residential sewers are being built larger than necessary; whether overdesigning, if it exists, has incurred unnecessary expense; if small-size pipe is feasible in view of frequent terminal extensions necessary to service additional housing; and if small-size pipe requires impractically steep grades.

Among the membership of the BRAB advisory committee is G. A. Robinson, NCPMI vice president.

### White To Head Penn. Ceramists

Harold E. White is the new president of the Pennsylvania Ceramics Association. He is employed by Lava Crucible Refractories Co. of Pittsburgh.

Others elected were E. M. Hommel, of O. Hommel Co., first vice president; J. H. Kruson, of National Refractories Co., second v-p; J. R. Coxey, Glen-Gery Shale Brick, managing director; D. O. Evans, Corning Glass, treasurer; and R. G. Ehman, Penn. State University, secretary.

### SCPI Sales Meetings Ready To Start

Beginning with a meeting in New York City on Jan. 28, the SCPI Sales Conventions will hit the road again this year.

E. F. "Al" Walsh reports that the agenda will cover such items as "Analysis of the 1957 Market," "Selling the 1957 Homebuilder," "How to Tie In With National Advertising," "Digest of the Modern Masonry Conference" and a special surprise.

Among early dates set for the meeting, following New York, are Philadelphia on Jan. 30; Washington, Jan. 31; St. Louis, Feb. 6; Chicago, Feb. 8; Minneapolis, Feb. 11; Des Moines, Feb. 12; Dayton, Feb. 13 and Cleveland, Feb. 15.

### Bennington Brick Granted Charter

Bennington (Vt.) Brick Corp. has been chartered by the Secretary of State with an authorized capital of $100,000.

Its purposes are to manufacture and distribute brick, ceramic and clay products, and engage in any necessary mining activities, according to the report.

### Kalo Meet

A MEETING for architects, dealers, and builders was held recently at Des Moines, Iowa, by Kalo Brick & Tile Co. Among those attending, l to r, Harry Toner, Natco Corp.; architects Burdette Higgins, Alan Salesbury, Harold Payne; Kalo man George Schnurr.

# NEWS OF THE INDUSTRY

## PERSONAL NEWS

Gladding, McBean & Co. have moved their district office from Mica, Wash., to Spokane, reports district sales manager **R. J. McAlpin.** The new office will be at 2607 Monroe.

**J. A. "Mr. Mac" McDonald,** has retired, along with **Joe Mesquite,** as the first men to retire under the new Pension Plan now effective at the Kraftile Co., Niles, Calif. The two men were honored at a luncheon attended by Twenty Year Club members, executives and key personnel of Kraftile. Mesquite was #1 on the Kraftile payroll, starting with the company in 1925. McDonald joined the staff 12 years ago. McDonald will be succeeded as office manager by **W. M. Schulte,** who as a 20 year man is the first to occupy the position by promotion from within the organization. McDonald will continue as a member of the board.

**James R. Bachman,** a specialist in refractory materials, has joined the staff of the ceramics division at Battelle Institute, Columbus, Ohio.

**D. J. Wierman,** former general manager of Kansas Brick & Tile Co., Hoisington, Kans., has resigned to take a position as assistant manager of Ceramic Building & Equipment Co., Hoisington.

**Charles W. Burger** has been appointed Assistant Industrial Relations Manager for Harbison-Walker Refractories Co., Pittsburgh, according to an announcement by **Robert J. Wagner,** Industrial Relations Manager.

Directors of Illinois Brick Co., Chicago, have elected **Alfred H. Neubieser** vice president in charge of concrete products production.

**John B. Werner,** vice-president of General Maintenance & Engineering Co., Canton, Ohio, has announced that his company has been appointed distributor for General Refractories' complete line.

The Board of Directors of **Gladding, McBean & Co.,** San Francisco, recently declared a regular quarterly dividend of 35c per share plus an extra dividend of 15c per share on its capital stock payable January 18.

H. K. Porter Co., Inc., has announced the appointment of **Melvin A. Young** as administrative assistant at its Laclede-Christy Co. division at St. Louis.

**William S. Lowe,** president of A. P. Green Fire Brick Co., has been elected a member of the board of directors of A. B. Chance Co., Centralia, Mo.

Washington (D.C.) Brick Co., has announced the appointment of **John C. Morris** as sales manager and of **John R. Clark** as vice president.

**Carleton P. Adams** has been appointed manager of advertising and public relations for Gladding, McBean & Co., Los Angeles, according to an announcement by president **C. W. Planje.**

**Melvin A. Young** has been appointed administrative assistant at Laclede-Christy Co. Div. of H. K. Porter Co., Inc. He will work on specific problems in production and engineering at Laclede.

**Gerald W. Neher** has succeeded his father, the late **W. B. Neher,** as president and manager of Alabama Brick & Tile Co., Decatur.

**Robert J. McCarthy,** president and general manager of Missouri Refractories Co., Los Angeles, will retain his position as head of the refractories wholesale firm while acting under appointment of Mexico Refractories Co. as general manager of their Atlantic Div. The Mexico company is constructing warehouse facilities in Elizabeth, N. J., to serve metropolitan New York.

**Ted Tysinger,** engineer for four years at Cunningham Brick Co., Thomasville, N. C., is leaving to work for Boren Clay Products Co., Pleasant Garden, N. C.

Stephenson Brick & Tile Co., Birmingham, Ala., has appointed **Harry T. Foster** and **Cecil E. Loyd** as salesmen.

**Albert W. Busch,** 72, has been compelled by a heart condition to retire from his position as superintendent for the Buffalo, N. Y. operation of Basic, Inc., Kelley Island Div. He will remain available on a consulting basis. Replacing him as plant superintendent is **Jerry F. Jankovic,** assistant superintendent for the past two years, and plant engineer for the preceding three. Busch had been with Basic for 36 years.

## OBITUARIES

**Fred Spencer, Sr.**—59, part owner of the Southern Brick & Tile Co., Byhalia, Miss., died at his home Dec. 30.

**Robert H. Robinson**—87, organizer of the Monongohela (Pa.) Clay Mfg. Co., died Dec. 28.

**Paul Mitchell**—21, son of Mr. and Mrs. Ray Mitchell of Louisville, (Ky.) Brick Co. died November 1 in an automobile accident.

**Abel C. Cameron**—81, president of the North East (Md.) Fire Brick Co., died Dec. 14. Cameron founded the company in 1905, and despite a several years' illness recently, was still directing operations.

**Arthur E. Wilbur**—81, retired superintendent of the Dickey Clay Mfg. Co., Texarkana, Tex., died Dec. 26 of a heart attack.

**George E. Biggins**—61, died November 24; he had been plant superintendent at Denver (Colo.) Fire Clay Co. and at the time of his death was assistant superintendent.

**John Henry Stayer**—Former Tulsa district sales manager for A. P. Green Fire Brick Co., Mexico, Mo., died Dec. 1. He started with Green in 1922 and retired almost three years ago.

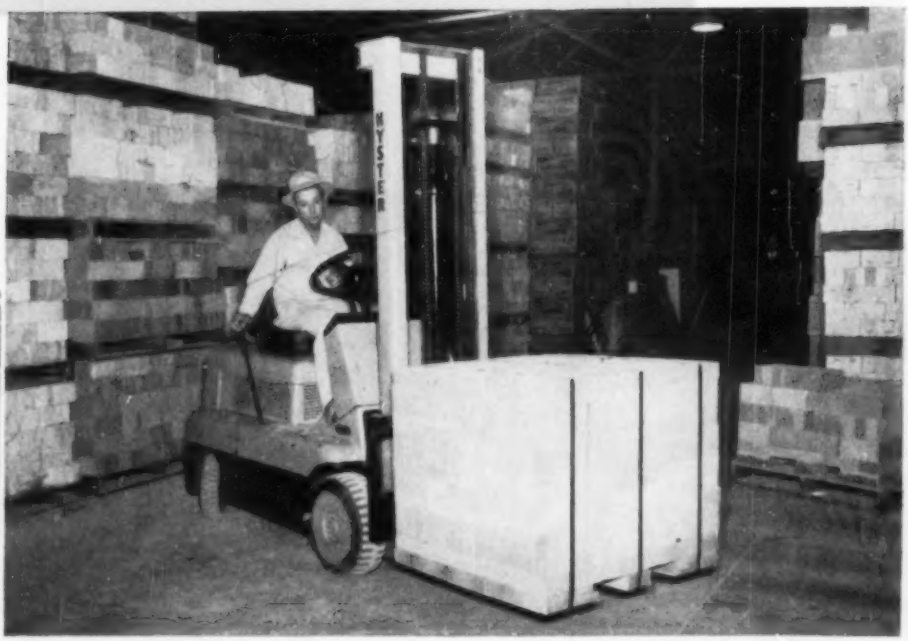
**James H. Belt**—46, former sales representative for Texas Brick Co., since June, 1954, died recently in Odessa, Tex.

**Clarence H. (Klondy) Mitchell**—64, one time superintendent of Brighton Clay Products Co., New Brighton, Pa., died Dec. 25 after a heart attack.

**Karl H. Aufderheide**—68, president of the New Ulm (Minn.) Brick & Tile Yards, died Dec. 10. The business will be carried on by his sons John H., president; Robert T., secretary-treasurer; and Carl J., vice president.

**Anton Vidmar**—64, superintendent for Collinwood Shale, Brick & Supply Co., Cleveland since 1921, died in late November.

# HYSTER INDUSTRIAL TRUCKS ARE *BUILT* TO DO THE HEAVY WORK




YC-40 warehousing unit loads of strapped fire brick. Pallet is of the expendable type.

Pictured above is one of many typical examples of how Hyster® Industrial Trucks are helping to effect tremendous savings in the cost of materials handling in Brick and Clay Plants.

Even if you are now using lift trucks or have never used industrial trucks of any kind, your Hyster dealer can show you how you can quickly realize more profit from your operation with these multi-purpose utility tools. Your Hyster dealer knows materials handling . . . he is an expert on the problems and their solution. He can help you with special techniques and cost reducing methods. Call him today...why not take advantage of his materials handling know-how?

## HYSTER DEALERS GIVE YOU ALL 3!

1. **PLANNING**—your Hyster Dealer will plan your materials handling operation from scratch, or will analyze your present system to see if it can be improved.
2. **THE RIGHT TRUCK**—for your job from Hyster's complete line of industrial trucks (1,000-30,000 lbs.) and over 100 job-attachments for economical load handling.
3. **THE RIGHT SERVICE**—ample spare parts stock, shop facilities, factory-trained mechanics and an efficient field service that keep your Hyster lift trucks going on your job, wherever your job might be located. Hyster trucks are noted the world over for their low downtime.

**Materials Handling Trucks from 1,000 to 30,000 pound capacities**

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**FOUR FACTORIES:** Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

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**HYSTER COMPANY**

*For economical control of heat through 3000F*

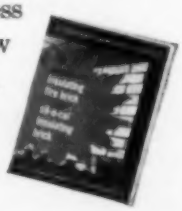
# J-M Insulating Fire Brick . . .

## time-tested, time-proven for long-life insulation

**J-M Insulating Fire Brick** provide a highly efficient refractory lining or back-up insulation behind other refractory protection. They come in six types covering a full range of temperatures up to 3000F. Structurally strong, they are light in weight and low in conductivity. With J-M Insulating Fire Brick you can build furnace walls thinner and still achieve important fuel savings. They also help increase production by assuring quick furnace response.

**Sil-O-Cel® Insulating Brick** is another outstanding J-M fuel saver. It is a high load-bearing brick for back-up insulation behind refractory linings. When Sil-O-Cel is used, the thickness of the exposed refractory can often be reduced as much as one-third, resulting in substantial savings.

Write for further information on how J-M Insulating Brick can save fuel and improve performance of your equipment. Ask for folder IN-115A. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, 565 Lakeshore Road East, Port Credit, Ontario.



**Johns-Manville *FIRST IN* INSULATION**

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# NEWS OF THE INDUSTRY

### Fred Foy Named Porter Director

Fred C. Foy, president of Koppers Co., has been elected to the board of directors of H. K. Porter Co., Inc.

### Region 6 Re-Elects Madsen, Others

At the Region 6 annual meeting, held in Des Moines recently, the 1956 officers were re-elected for 1957. Officers are M. C. Madsen, president; C. A. McKay, vice-president; G. H. Galvin, Jr., secretary-treasurer.

***Plants***

***People***

***Products***

*Plant work underway, equipment installations, clay people at work and off-duty, gossip, tips on news and features to watch for—all part of this miscellaneous column of informal news. Tell us what you're doing, even if it's just in the "thinking about" stage and we'll be happy to report it to our readers . . . no news is too unimportant about you or your plant.*

---

More than 100 brick and tile people recently toured the two **Merry Bothers** Brick & Tile plants in Augusta, Ga. The executives were attending the quarterly meeting of the Southern Brick & Tile Mfrs. Assoc. . . . **M. L. Fulcher** has retired as office manager of Cannon & Co. of Sacramento, Calif. The same plant recently added a Robinson Hi-Draft fan, with more news of this company in this month's news pages.

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**Chuck Kraft** reports they've recently added a press for production of shapes that had been hand molded previously, costing $25,000 for the set-up at the Niles, Calif., Kraftile plant . . . Jenkins Brick of Montgomery, Ala., has installed a Stephens-Adamson clay feeding and conveying system, according to **VP Harry Meek.**

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**Denver Fire Clay Co. built a periodic for their operation, reports VP J. H. Lentz. Plant is also doing experimental work in high draft. He also told us of the death of George E. Biggins, former plant superintendent (see Obituaries). . . . E. R. Crandall, chief engineer of Mullite Refractories Co., Shelton, Conn., told us of the installation of a $5,000 Buell cyclone dust collector . . . Stephenson B&T of Birmingham, Ala., is developing a new face brick for the area sales; president Lovick L. Stephenson reports that they are using insulating fire brick on their round kilns.**

A new matt face brick is now being made by National Clay Products Co. of Colorado Springs. President **L. E. Welte** reports that they're thinking about doing some expansion work, but so far it's in the talking stage. The company is also figuring on adding sand mould brick. Some recent jobs there include new buildings at Fort Carson and a hospital.

**Charles C. Hendrick, secretary of Santa Barbara (Calif.) Brick, reports completed installation of 12 120-ft. drying ovens, gas fired, to replace their old sun drying methods. Hendrick also says that the plant will increase their production from 3 million to 7 million in 1957 (he doesn't say what methods or equipment will be used to do this; we'll try to find out and report it) with present production in common, common oversize and drain tile.**

**Manager Clarence Rasmussen** says that glazed sill tile is now being made at Western Tile Mfg., Denver . . . **Thomas Summerville III,** president of Washington (D. C.) Brick Co., told us about a complete new Varner clay shed they've added plus a rearrangement of their clay preparation machinery. Washington has been appointed distributor for **Arketex Ceramics Corp.,** Brazil, Ind., for Washington and nearby Maryland and Virginia . . . **Kenneth Barrette,** executive vice-president, reports that Pacific Clay Products is working on the installation of a Swindell-Dressler tunnel kiln . . . Work being done at Dixie Fire Brick, Alabama, includes a planned 10% expansion; they're completing a 34-ft. down draft kiln, have added a new bath house and new storage sheds, according to J. Q. Lewis, president.

**Holly Springs (Miss.) B&T is bringing out some new colors in their brick, reports J. D. Gandy, secretary-treasurer . . . John McNear, plant engineer for L. P. McNear Brick Co., Calif., says they completed a field kiln last summer and are considering building two more.**

In news pages in December, reports were given on the modern plant being constructed by Sorrento Brick & Clay Products of Calif. **Robert Simmons,** president and manager, has told of this additional information: products being made will include red scratch face brick, flower pots, with production of patio tile and mission roofing tile in the near future.

The 12-month operation plant includes this equipment: an Eagle 9-ft. dry pan, Leahy screen, #30 Steele comb. pug-auger, #18 Steel cutter, two flower pot presses, one 160 cu. ft. shuttle kiln, one 160-ft. Minton tunnel kiln, four periodic dryers. The plant is just getting into production as part of San Diego county's big expansion program, and we hope to report in detail on the operation in spring or summer. Other equipment being used includes two Clark fork lifts, one Champ towing fork lift, Acme strapping equipment, three delivery trucks and one model 933 Caterpillar loader with ripper. About an acre of the stock yard is surfaced with black top. The Sorrento property includes some 19 acres of red burning clay, all extending uphill from the plant level to an elevation of 90 ft., facilitating mining. Mining operation is reported very easy by President Simmons, using skip loader and dump truck.

**Gerald Neher of Alabama Brick & Tile reports that they've decided tentatively to step-up drying capacity but haven't yet decided on how to do it . . . We're trying to get some info and photos on a semi-automatic tile machine, formerly imported from Italy, now being made in Mexico and reportedly used in Florida and planned for California use. It's supposed to reduce hand labor costs from 320 pesos to 60 pesos for 200 sq. meter production of tile daily. We'll report on it as soon as the information comes through.**

### Thanks For Your Cards

The staff of BRICK & CLAY RECORD wish to express their appreciation for the cards and letters received from the following during the Christmas and New Year Holidays: Carl H. Bach, Ed Valensi, Avery C. Newton of The Refractories Institute, Morton Printing, Paul Blake Belden, Sr., Wayne E. Barrett of Oskaloosa Clay Products, A. B. Segur & Co., Neal Moehler of Champion Brick & Supply Co., Structural Clay Products Research Foundation, Martin E. Snell, Robert K. Thrower, Chambers Brothers Co., Brick & Tile Service, Inc., Len Kirsten of SCPI.

Also Kenneth & Katherine MacDonald, Astra Photo, Conveyor Equipment Mfg. Assn., Brooklyn Brick Co., Inc., Phil & Carvel Tefft of Claycraft, Ted Berger of ECSA, Alwine Brick Co., Material Handling Digest, Schmidgall Mfg. Co., Onondaga Brick Corp., Yale & Towne Mfg. Co., The North American Mfg. Co., E. D. Bullard Co., The Ironton Fire Brick Co., National Paint & Manganese Co., Rhodes Smelting & Refining Co., Inc., Williams Patent Crusher & Pulverizer Co., Inc., G. M. Basford Co., Arthur & Ethel Stone.

# NEWS OF REFRACTORIES

### T. M. Evans Elected Porter Chairman

T. M. Evans, president, was elected chairman and Charles L. Holbert, executive vice president, was named named president of H. K. Porter Co., Inc. The company has not had a chairman prior to this.

Evans has been president of Porter since its reorganization in 1939. Holbert joined Porter earlier this year.

### $119,000 Modernization At Laclede Ottawa Plant

A modernization and mechanization program, costing $119,000, has improved plant operations and product quality at the Ottawa (Ill.) works of Laclede-Christy Co. Div., H. K. Porter Co., Inc.

Among improvements made in 1956 have been an oil standby fuel system that was installed on the periodic kilns to permit changing from gas to oil firing when a gas shortage occurs. Equipment for feeding, blending and general storage is being added to present facilities.

A new heavy duty deaired stiff mud extrusion machine with 150 hp motor was just installed. Seven new elevators have been added to help eliminate contamination by spillage, with five screw conveyors also having been installed. Additional concrete paving has been done for improving handling; a new power transfer is being installed. Other additions include a new steel building to house the tunnel kiln. More improvements are now under consideration.

Stopper rod sleeves have been added to the product line, with the necessary equipment for manufacture installed earlier this year.

Laclede's improvements at Ottawa are a part of an overall $1.5 million expansion and modernization announced earlier.

### $100 Million Sales; Modernization at Carborundum

For the first time in its 65-year history, sales in excess of $100 million were reported by Carborundum Co., Niagara Falls, N. Y., for the year 1956. This compares with $89 million in 1955, $70 million in 1952, and $37 million in 1946.

General Clinton F. Robinson at the same time announced the continuation of modernization and expansion with a scheduled expenditure of $33 million during 1957 and 1958.

Upwards of $5 million will be spent for modernizing and expanding the company's division in the Niagara Frontier in 1957. Included in this figure will be work done at the Monofrax plant of the Refractories Div., Falconer, N. Y.

The balance of the $33 million is programed for the refractories division in Perth Amboy, N. J., plants making other products, and for some projects not yet announced.

Refractories division appointments announced included: Arthur A. Turner to division sales manager; Otto R. Stach, as manager engineering branch; and Charles F. Geiger, assistant manager, product engineering

### H-W Sets Earning Record in 1956

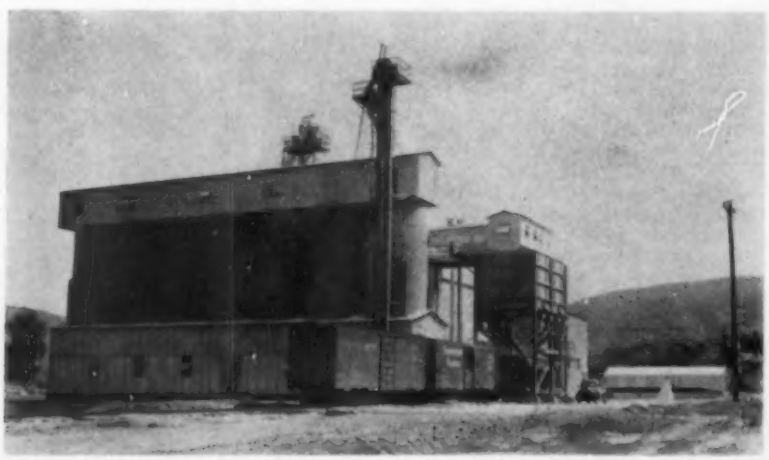
Harbison-Walker Refractories Co., Pittsburgh, expects earnings for the fourth quarter to be near $2 per common share. The company is expected to report a record net income this year.

Sales for the final quarter will probably be around $27 million, according to E. A. Garber, president. Estimated results for the current quarter would bring earnings for the year to around $6.90 per share, with net income at about $10 million. That would compare with the previous high in 1955 of $7.7 million.

Sales for this year 1956 will be about $95 million, compared with $80.5 last year.

Garber reported that about $10.5 million was spent in 1956 on expansion and improvements with capital expenditures in 1957 expected to be at about the same level.

### Norton Opens New Electric Furnace Plant



Norton Co. recently dedicated an electric furnace plant at Huntsville, Ala. The new plant will manufacture a variety of materials including boron carbide, fused zirconia, fused magnesium oxide and fused alumina.

At a later date, facilities for making aluminum oxide and silicon carbide may be added. The operations at Huntsville are primarily the electrical fusing of raw materials to make chemical products which are then sent to Norton's Worcester, Mass., plant for further processing. Some of the Huntsville products, however, will be sold directly to other industrial users.

Edward D. Porter is resident manager of the Huntsville plant, which at present employs about 60 people. Norton reports that the main reason for locating the plant at Huntsville was availability of low cost electric power.

### Green Dist. Chartered

A. P. Green Fire Brick Co. of Western New York, Inc., in Buffalo, has been granted a charter of incorporation listing capital stock of $150,000. Directors are W. G. Coleman, Jean A. Martin, Robert J. Lansdowne, with the filer of papers listed as Lansdowne, Martin, & Ray of Buffalo.

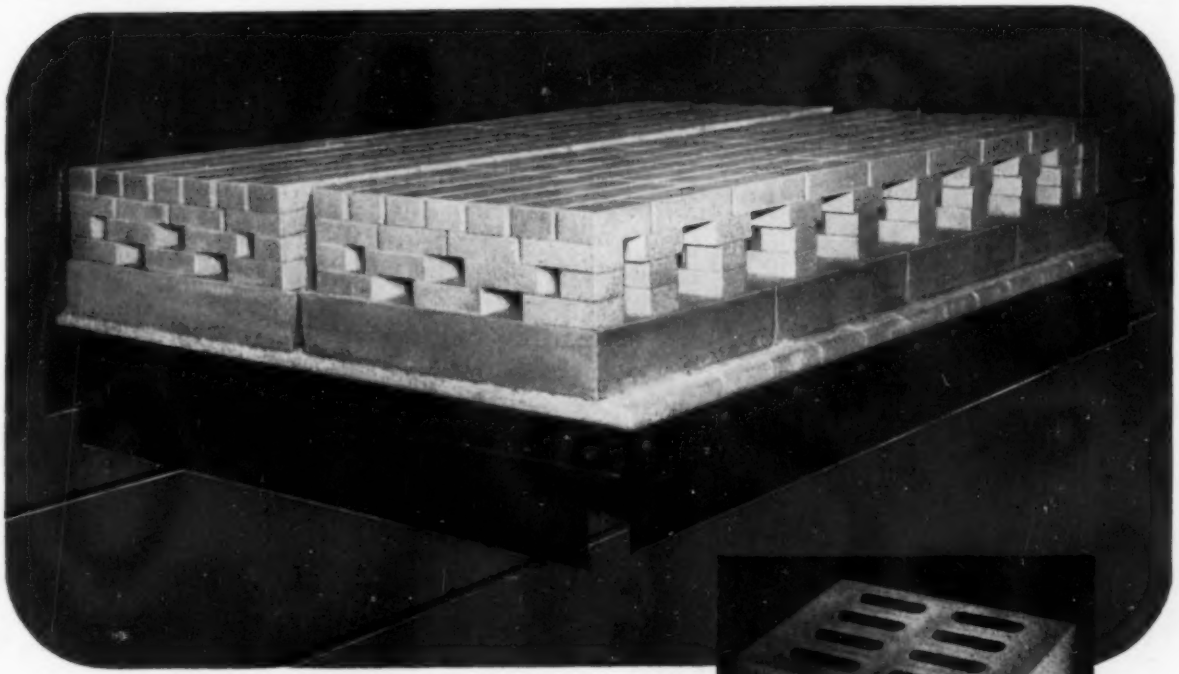
### Swank's To Boost Output 30%

Hiram Swank's Sons has announced a project to expand production by 30% at their Large, Pa., plant, according to President Albert M. Swank.

The Large operation presently employs 95 men and turns out an average of 36,000 tons of refractories annually. The planned expansion will increase output by at least 12,000 tons annually.

Specific details about the expansion were unavailable at presstime.

# HARBISON-WALKER
# CAR-TOP SPANNER TILE



Typical H-W Grid shape used in span with special benefit for firing hollow ware.

## Helps in achieving
## FULLEST ADVANTAGE OF UNDERFIRING

Many of the advantages resulting from tunnel kiln underfiring, such as uniformity of burn, high efficiency and minimum breakage, to a large degree are dependent upon car-top refractories.

Through extensive research and experience, Harbison-Walker Spanner Tile have been developed for the special requirements of the underfired car top construction. The dependable service they render in kilns used for firing face and common brick and sewer pipe at temperatures up to 2200°F. is attributable to certain enhanced physical properties. Most important among these are high transverse strength and excellent spalling resistance. Spanner Tile are very resistant to bending, cracking and spalling.

Accessory refractories which contribute to the excellent results secured from car tops of this construction are H-W Castables and deck shapes for the base and H-W pier brick possessing unusual high temperature compressive strength in soaking heat. Of similar importance is the H-W Bonding Mortar having the ceramic set which provides the most desirable temperature-change flexibility.

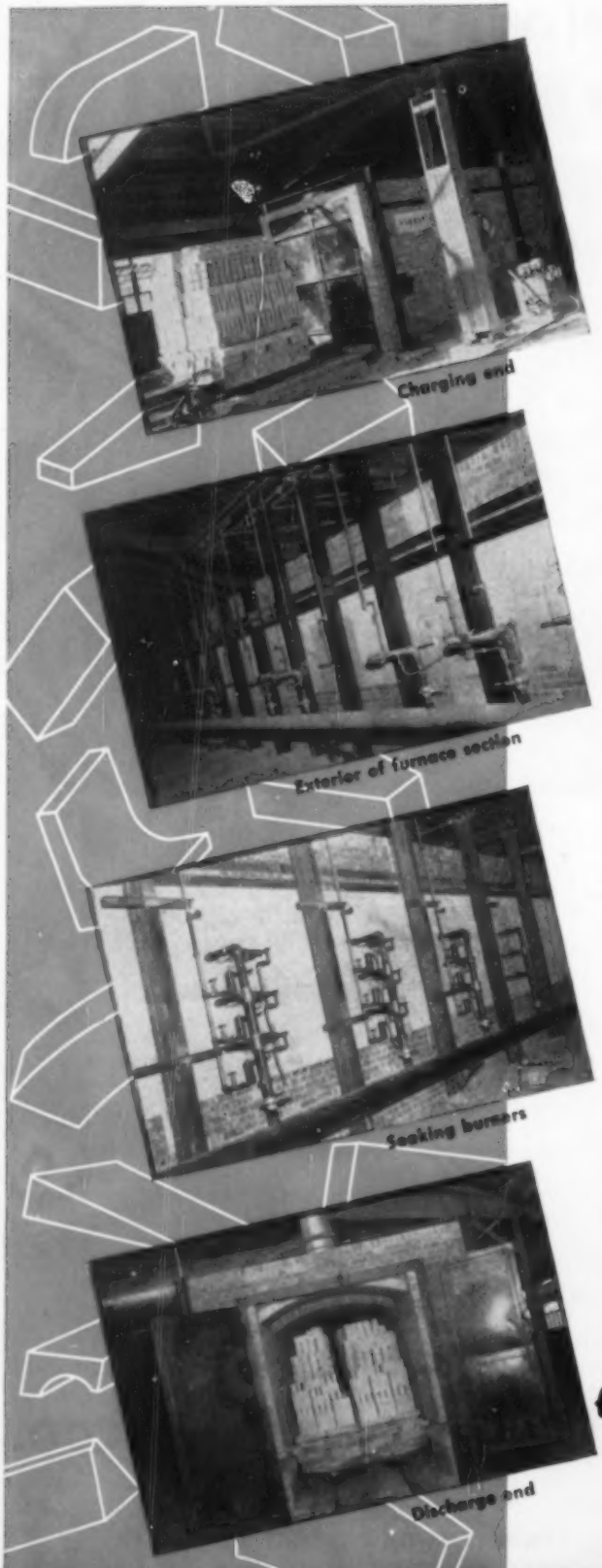
The many different requirements for widely diversified tunnel kiln operations are fulfilled by Harbison-Walker Car Tops of designs especially suited for particular conditions. They are made in various kinds of refractories, such as high duty and super-duty fire clay, high-alumina and silica.

Write for prices and complete information on Harbison-Walker Car-Top Spanner Tile.

**HARBISON-WALKER REFRACTORIES CO.**
**AND SUBSIDIARIES**

*World's Most Complete Refractories Service*

**GENERAL OFFICES • PITTSBURGH 22, PENNSYLVANIA**




# kiln production tops 50,000 9″ equivalents in 24 hours

## *That's HARROP firing for you!*

Mexico Refractories Company, Mexico, Missouri accomplishes this production feat with a 406-foot HARROP kiln. Burning gas, with oil as stand-by, this kiln handles a miscellaneous assortment of dry press, handmade and stiff mud fire brick and special shapes. It's the third HARROP kiln installation since the company first started in 1929, producing "better refractories for the furnaces of industry." Nine HARROP dryers are also on duty.

If drying and firing creates a bottle-neck in your plant, maybe a HARROP Engineer can break it. His experience in hundreds of ceramic plants can be a big help to you now. A non-obligating consultation on proposed new installations can be quickly arranged. Just write, wire or phone!

HARROP

**HARROP . . . Practical Ceramic Engineering, Put Profitably to Work**

**Harrop Ceramic Service Co.**

35 E. Gay St., Columbus 15, Ohio

*British Associate:*
British Ceramic Service Co., Ltd., Bricesco House, Stoke-on-Trent, England

*Agent for Brazil:*
Refratarios e Equipamentos Industriais "Reila," Ltda., Sao Paulo, Brazil

**TUNNEL KILNS • DRYERS • PLANT DESIGN**

# NEWS OF REFRACTORIES

## U. S. Steel To Expand Pittsburgh Facilities

The placing of contracts for construction and improvement of facilities to add about 670,000 ingot tons to the steelmaking capacity of U. S. Steel's Pittsburgh district plants has been announced.

The projects will raise the annual capacity of U. S. Steel's Monongahela Valley plants to about 11,910,000 tons.

Expansion of existing open hearth and electric furnace capacity, with installation of finishing facilities, will provide approximately 450,000 tons of plates, structural steel, and other products at the Pittsburgh operation.

## Porter To Build $8 Million Mississippi Plant

H. K. Porter Co., Inc., has announced plans to build a chemical plant in Pascagoula, Miss., to product magnesia and basic refractory products. The cost of the plant is estimated by Porter president T. M. Evans at $8 million, with completion scheduled for early 1958.

The plant will be located on a 400-acre tract on a proposed new deepwater channel that will provide docks and access to ocean-going vessels.

The site was chosen because of proximity to raw materials, natural gas, and rail and water transportation. Pascagoula is located on the Gulf Coast.

## Steel Output At High With 2.5 Million Tons

Steel production in early December set a new production high at 2,522,000 tons, exceeding the previous record of 2,506,000 tons in the week of October 1, according to the American Iron and Steel Institute.

Actual operating rate during the record week was 102.4% of capacity.

## Two Steel Companies Ask For Fast Tax Write-off

Lone Star Steel Co. and Bethlehem Steel Co. have applied for tax help on expansion projects costing over $14 million.

Lone Star filed an application with the office of Defense Mobilization for fast amortization for tax reasons on $7.8 million expansion at their steel tubing plant at Lone Star, Tex.

Bethlehem applied for a write-off of $6.5 million of expansion at its rolling mill plant at Steelton, Pa.

The government on December 26 turned down the above applications for a fast write-off on steel expansion programs.

## Kaolin Production At All Time High in 55

Domestic production of kaolin in 1955, according to reports of producers to the Bureau of Mines, Department of the Interior, increased 16% in 1955 compared with '54, and reached an all-time high of over 2 million short tons.

Refractories consumed some 303,000 short tons for 14% of consumption.

The same Bureau reported domestic ball clay production increased 25% in tonnage in 1955. Use of ball clay in refractories increased by 35% over 1954.

## General Refractories Expects '57 Spurt

General Refractories Co., Portsmouth, Ohio, anticipates a spurt in brick production in 1957, according to M. L. Billig, manager of the Portsmouth division.

He also reported that General plans to build a gravel washing plant near Minford, Ohio.

## H. K. Porter Buys Mullite Refractories

H. K. Porter Co., Inc., Pittsburgh, has acquired the Mullite Refractories Co., Shelton, Conn., according to an announcement by T. M. Evans, Porter chairman. Mullite will be combined with Porter's Laclede-Christy Div.

Mullite has been a pioneer in the manufacture of mullite brick since 1926. Their products are trade-named "Shamva" and include a mullite brick for the steel industry, and glass; ramming, mortar and castable cements; a plastic fire brick cement; flat arches for any furnace construction.

## Office, Warehouse Opened by Mexico

A large new Atlantic Div. warehouse in Elizabeth, N. J., will open about January 20 to distribute the complete line of products of Mexico (Mo.) Refractories Co. The warehouse will stock firebrick and refractory specialty products with a sales staff of five under the management of K. F. Sheckler, shown in above photo.

Mexico has also announced the opening of new division offices in Western Canada under the supervision of W. A. Sullivan Jr., whose office will be located at 520 Northern Hardware Building Edmonton, Alberta. An office is also operating under direction of W. A. Sullivan Sr. at St. James, Manitoba.

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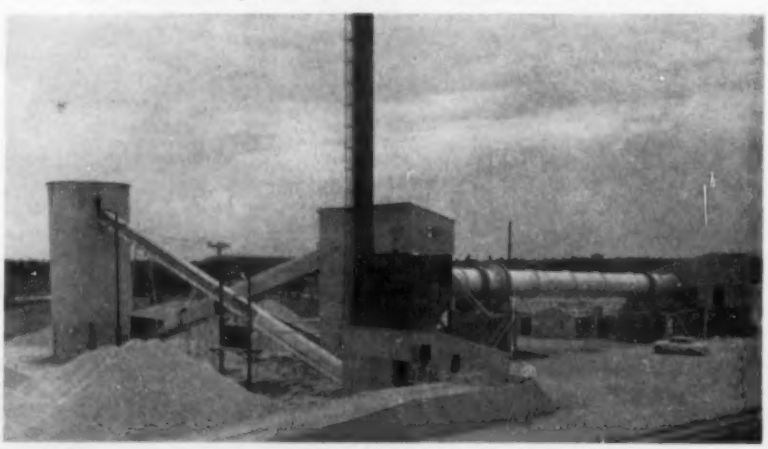
**Alexander Pupulidy** has been appointed supervisor of structural clay products research at Armour Research Foundation of Illinois Institute of Technology, Chicago, according to John Neff, manager of the ceramics and minerals research dept. At one time Pupulidy was a ceramic engineer for Harbison-Walker Refractories.

### New Calcining Kiln Installed At Mexico Refractories

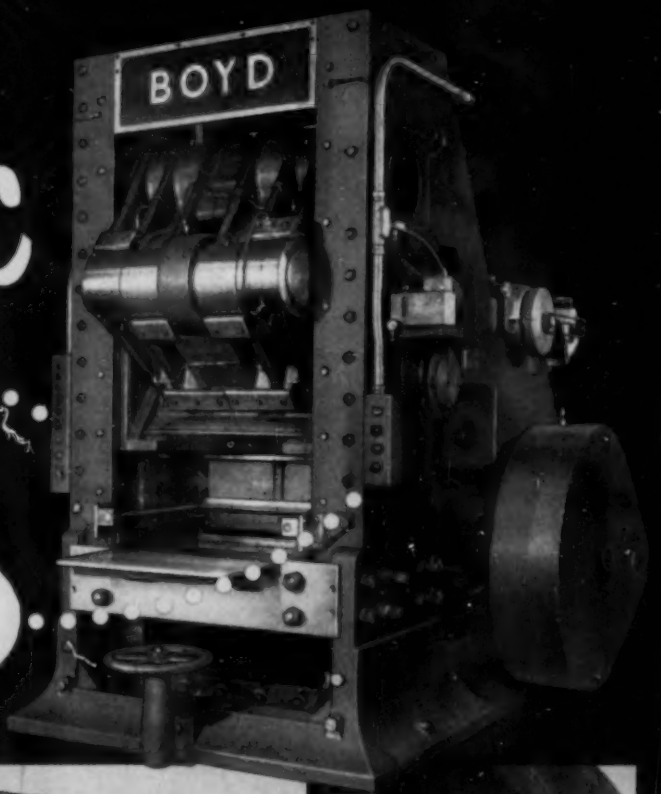


Another step in its quality control program was announced by Mexico (Mo.) Refractories Co. with the completion of the above calcining kiln. The new facility will calcine 250 tons of raw fire clay daily. Manufactured by Allis-Chalmers Mfg. Co., the kiln is 8 x 140', equipped for gas or oil, and electrically driven. Mexico has also announced completion of 4-drum crusher and storage facilities.

# from Single Stroke to Full Automatic it's . . .

# BOYDAMATIC

## for SELECTIVE CONTROL of Refractory Production



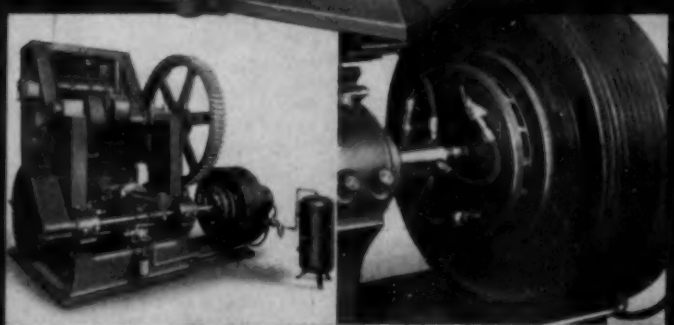

*One of the important features* which makes Boyd Press a truly versatile compacting machine is the variety of control mechanisms which are available. Operating controls range from a simple manually controlled air valve to complete operating flexibility as offered with BOYDAMATIC.

With Boydamatic an easily operated control panel gives you a choice of full automatic operation from the time the machine is charged to finished brick . . . or a selective combination of manual and automatic control over the following operations:

*Air operation of charger* • *"Inching"* • *Single stroke with automatic deairing "pause"* • *Automatic-continuous operation with deairing "pause".*

The *"inch control"* permits the operator to stop press at any point in the operating cycle. The *"single stroke"* cycle permits a range of time lapse settings for semi-automatic production of special shapes, steel clad brick, etc.

Add *selective control* to Boyd's exclusive "top 'n Bottom" compacting action; massive, rigid frame construction and you'll see why refractory producers have been translating BOYD PRESS into about 95% of the dry press refractory brick produced in this country.



Air operated charger and automatic lubrication system are shown in this rear view of Model X Boyd Press

Heart of instant response to operating controls is this positive, air operated clutch and brake assembly

Simple panel provides selective control over these operations:

**CHISHOLM, BOYD & WHITE CO.**

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# Refractories

## The Backbone of Modern Industry

The refractories industry now, more than ever, looms as a vital link in our economic system. Every facet of our living needs involves some material that is produced with intense heat . . . heat that must be confined with refractories that this industry produces.

Home appliances, houses, factories, schools, churches, airplanes, guided missiles, communication apparatus — all need more and more steel, aluminum and ceramics. All the latter are made with heat confined by refractories.

The age of lumber, paper, organics for our automatic equipment in and out of the house, for our buildings, for our transportation and communication machinery is past. Modern products must be made of rigid, strong, heat and shock resistant materials.

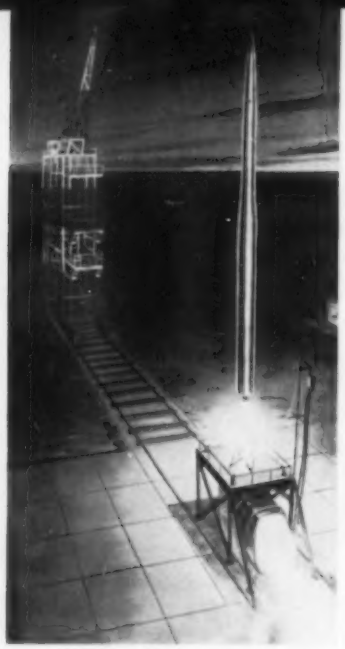
So refractories are truly the backbone of our industry — yes, of our civilization.

Specifically, this issue, the twelfth Annual Refractories Issue, reviews how refractories are applied to ceramic furnaces that make our electronic ceramics, appliances, clay products, etc. It goes into great detail on how refractories are applied to the basic furnaces to make and process steel.

Many leaders in industries using refractories have voiced their opinion on the use of refractories and the future they see for the refractory industry.


# Brick & Clay Record

**January, 1957**



Navy Satellite Launcher

New York Central's X-Plorer

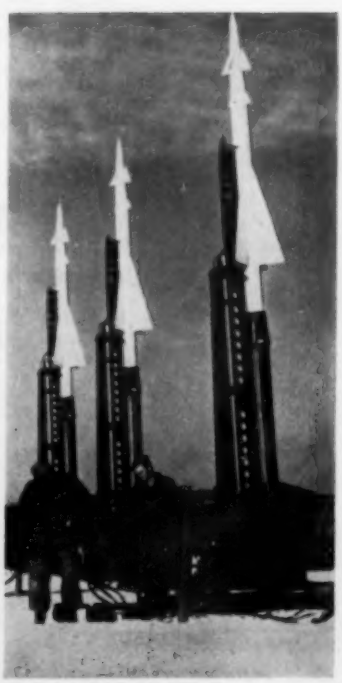
# Without Refractories, There'd Be No . .

Jet planes and guided missiles for defense . . . earth satellites for scientific research . . . trains, busses, autos, ships for quick transportation . . . tv sets, radios, washers and dryers.

These and countless other products of our American economy today rely upon refractories at some stage in their manufacture. There'd be no petroleum products without refractories . . . there'd be no concrete for roads without refractories to line the kilns . . . there'd be no brick for your homes, no bathtubs or window glass or tableware.

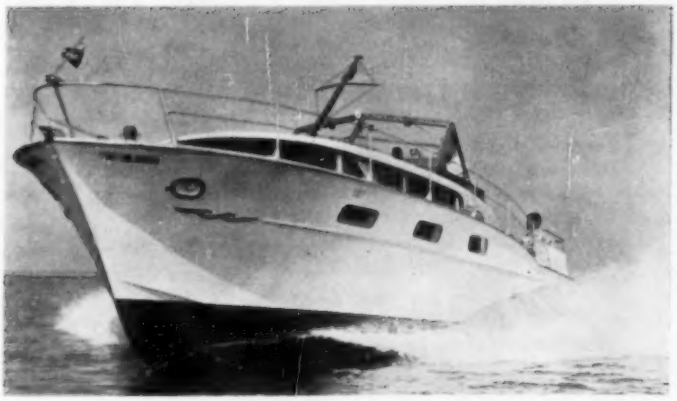
Production of materials and products that need contained heat in their manufacture require refractories. Of all items essential to today's manufacturing, it would be hard to find one single item as vital as refractories to so many industries in our economy.

Douglas AFD Jet Fighter



U S Army Nike Missiles

Refractories



Chris-Craft's "Futura"

## Planes, Trains, Cars, Appliances, Glass

RCA-Whirlpool "Imperial"

Hoover's "Constellation"

RCA Victor TV

Cadillac's Eldorado Seville

**Reviewing**

# Refractories Used In Ceramic Manufacture

This report on the application of refractories in the ceramic manufacturing industries is not intended to be complete. Rather, it is a summary of a full section that appeared in the January, 1956 Brick & Clay Record, and was presented in similar form in the 1956-57 Ceramic Data Book.

### *Periodic Type Kilns for heavy clay products*

Approximately half the volume of heavy clay products produced across the nation is fired in nearly 12,000 periodic type kilns. The range in firing temperatures may vary from 1600° to 2400°F depending upon the type of material used and final properties desired. Refractories used in construction are usually one of these types: super duty, high duty fireclay brick or group 20, 23, or 26 insulating fire brick.

Maintenance of periodic kilns is carried on extensively, especially in bagwalls, floors and in a lesser extent, crowns. A vast amount of refractories is needed for this purpose in the approximately 12,000 kilns. One operator utilizes 5000 in refractory materials every 5 years just in replacing floors in each of his periodic kilns.

### *Muffle Tunnel Kilns*

Muffle tunnel kilns are used for firing ceramic products when there is an advantage to be gained by not exposing the ware to the direct action of the products of combustion, and where a more perfect control of pressure and draft in all sections of the kiln is desirable for control of preheating and cooling losses.

Preheating and cooling zones are normally built of intermediate or low duty fireclay brick. There is a graduation of materials from the entrance and exit end of the kiln to the high fire section of the kiln and the refractory materials increase in heat duty accordingly.

Firing zone, muffles, holders and bases are usually constructed of silicon carbide, high alumina, sillimanite or fireclay brick in accordance with temperature requirements. In applications above 2900°F, sillimanite and fused alumina have proven satisfactory. The use of semi-silica brick in crowns for installations operating above 2400°F is recommended; at lower temperatures first quality firebrick or heavy duty fire brick are satisfactory.

### *Electrical porcelain tunnel Kiln*

Electrical porcelain tunnel kilns are used for burning steatite, zircon porcelain, cordierite, clay-flint-feldspar, and floor and walltile bodies in a range from 2250°F to 2400°F.

The predominant refractory used in the preheat zone of this type of kiln is a high duty fireclay brick. Insulating powder or insulating firebrick may be used to back up this first course from the hot zone out. An intermediate duty type fireclay brick can be used also.

Materials used in the construction of the fire zone of the kiln for the crown, hearth and sidewalls are: silica brick; semi-silica or super duty fireclay refractories. Insulation above the crown is usually 23 or 26 insulating fire brick. Backing up the hot face, the refractory materials are intermediate duty fireclay brick or high duty fireclay brick, or class 23 or 26 insulating firebrick may be used for this purpose.

Refractories used in the cooling zone generally are of the same classification as the fire zone for a distance of 10 to 20 feet adjacent to the fire zone. The next lower heat classification of fire brick is used for the next 20 feet and finally low heat duty of the discharge end of the kiln. Backing these hot face materials are refractories which resist the temperature to some extent to allow cooling to take place, therefore they are usually of low duty grade fireclay brick.

An idea of the size of the electrical porcelain whiteware field can be gained by the fact that there are about 125 tunnel kilns operating, ranging in size from 150 to 200 feet in length for dry press firing and from 200 to 450 feet for high tension firing.

### *Brick tunnel kiln*

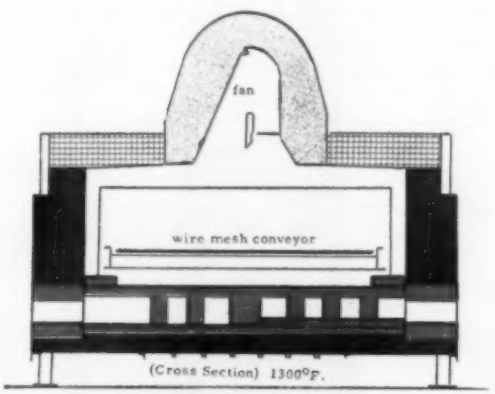
In a typical tunnel kiln, approximately 120,000 nine inch equivalents of refractories are used for the construction. Refractories vary in quality, from low heat duty to semi-silica duty depending on operating conditions. Insulating refractory brick are used for backing up the hot face temperatures.

In addition to the refractories used in the construction of the kiln, top refractories are also utilized and are a big item of expense to the plant.

### *Continuous Porcelain Enamel Furnaces*

The continuous porcelain enamel furnace of today has a firing temperature between 1450°F and 1550°F. Refractories in this type of furnace need to be of two basic types, namely, high conductive and heat confining, in addition to being heat resistant and capable of supporting loads.

In muffle type construction, silicon carbide and high alumina refractories are usually used in the firing chamber. Fireclay refractories are used throughout the remainder of the enamel furnace from the grade of super duty down to low duty, depending on proximity to the hot zone.




### *Glass Annealing Lehr*

One of the most widely used pieces of equipment in the glass industry is the annealing lehr. Operating temperatures of the lehr, used for removing the strains from glass, range from 1200°F down to 200°F or 300°F. The primary purpose of refractories in this installation is to confine radiation losses and keep the temperature distribution even throughout the lehr. For this purpose, the sidewalls and the top are usually class 16 or class 20 insulating fire brick. Depending on the temperature in the particular zone of the lehr, intermediate duty or low duty fire clay brick are used for the floor and also for the burner ports. Successful installations have also been made using class 26 or class 28 insulating fire brick in these regions.

### *Glass Furnace*

The range of refractories used in a glass furnace is wide because operating conditions vary considerably. Basically, refractories in glass house use are divided into two groups; those that come in contact with the glass itself and those refractories used elsewhere.

Glass furnace crowns are generally made of standard or super grades of silica brick, although smaller crowns successfully employ sillimanite, kyanite and mullite brick. Furnaces of special design which are usually small in size utilize molten cast materials which are proving to be excellent in use.

Glass furnace ports are constructed of high heat duty fireclay brick or silica brick for moderate operating temperatures. For higher temperatures, refractories of greater refractivity are required.

Walls and crowns in ports are being constructed of several combinations of mullite, regular and super silica, alumina-zirconia, high-alumina, chrome-magnesite, forsterite, and magnesite refractories.

Checker conditions in a glass furnace call for a range of refractories. Chrome-magnesite, forsterite, high alumina, super duty, silica, or high duty fire clay brick can be used depending on operating conditions.

The choice of a flux block is an important consideration since the entire furnace campaign is affected when the flux block fails. The universal requirements for a flux block are: minimum impurities to prevent affecting glass color, low expansion rate to allow fast-heating up schedules, resistance to abrasion, resistance to chemical attack, and minimum porosity.

Tanks operating at moderate to high temperatures utilize slip cast or hand made flux block of a high silica to alumina composition ratio to exacting specifications. A material having increasing use as a tank block is alumina-zirconia. Molten cast mullite has been increasing in use as tank block proportionately as operating temperatures have risen. Zircon, likewise, as a protective layer in the bottom of the tank in the manufacture of opal glass has been claimed to give good results.

Tank crowns are successfully insulated in some cases and lightweight silica brick are usually used. Regenerators and fore-hearths are insulated quite often. Insulating fireclay is used mostly for this application.

# Vital Role of Refractories In Modern Steel Manufacturing

### *Blast Furnaces*

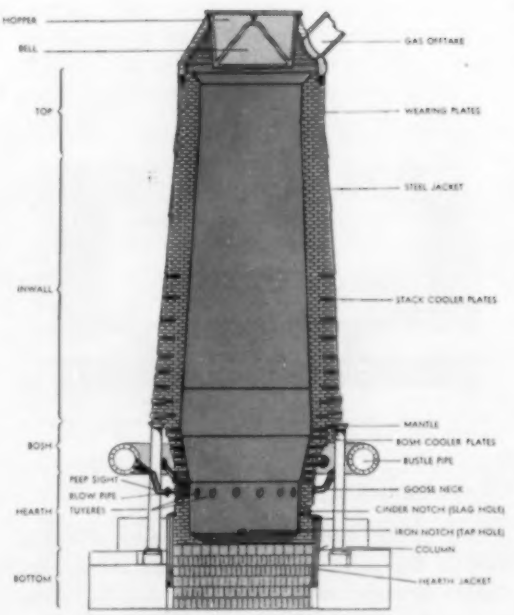
The service conditions to which blast furnace refractories are subjected vary with location. Bottoms must withstand extremely heavy loads at temperatures from 2500° F. to 2800° F. at the inner face. The hearth walls and bosh are also subjected to heavy loads, high temperatures—as high as 2900° F. to 3100° F.—and must also withstand some attack by blast furnace slag.

Hard fired, dense, high duty fireclay brick offer excellent service in blast furnace hearth sections. Service conditions of the stack section include temperatures ranging from about 2500° F. at the mantle to 400° F. at the top, some slag attack near the mantle, physical abrasion from charge introduction at the top, and exposure to an atmosphere rich in carbon monoxide.

In a carbon monoxide atmosphere, iron oxide will catalyze the reaction of carbon monoxide to form carbon and carbon dioxide, the carbon precipitating around the iron oxide. If free iron oxide is present in a brick exposed to carbon monoxide for a sufficient length of time, carbon is deposited within the brick until the brick is broken up or disintegrated. This can be prevented by hard firing so that all iron oxide in the brick is combined to form silicates. Hard fired, dense, high duty fireclay brick which can be slightly less refractory than hearth brick are used for stack linings.

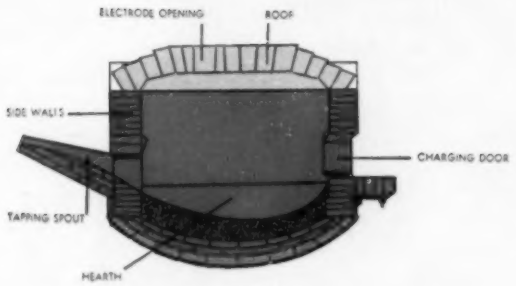
Furnace downcomer refractories operate at low temperatures, about 400° F., but are subjected to abrasive action by dusts in the furnace exhaust gases. Dense, hard, low or intermediate duty fireclay brick are used in this section.

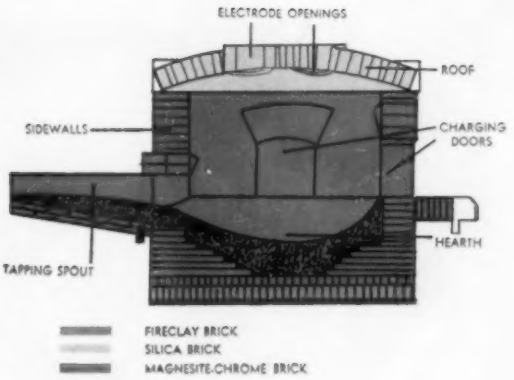
The hot blast main and bustle pipe linings are exposed to temperatures of from 800° F. to 1500° F., using intermediate or high duty fireclay refractories.




IRON BLAST FURNACE

FIRECLAY BRICK  STEEL




### *Electric Arc Furnaces*

The life of refractories in an electric arc furnace varies widely depending on the operation. Bottoms normally last longest and many stay in service for several years, although some require replacement as frequently as every two months. Roof and side wall life also varies widely from about 100 heats to as much as 800 heats or more.

As in open hearth operations, both acid and basic processes are used for refining the metal. This factor governs the type of refractories to be used. Extremely high temperatures up to 3000° or higher occur frequently and wide thermal fluctuations during charging tend to cause spalling, but the chemical nature of the slag dictates the choice of refractory.

In acid furnaces, the entire shell is lined with silica brick. The bottom is made of silica sand or ganister mixed with a small amount of a flux and sintered on top of silica brick. The roof is usually silica brick, although in some cases super duty fireclay, high alumina or sillimanite brick are used.

In basic furnaces, the side walls are usually built with basic brick, although in some cases, silica brick are used in the upper sections. The bottom is sintered magnesite, either rammed or burned in, above magnesite brick, either burned or unburned.

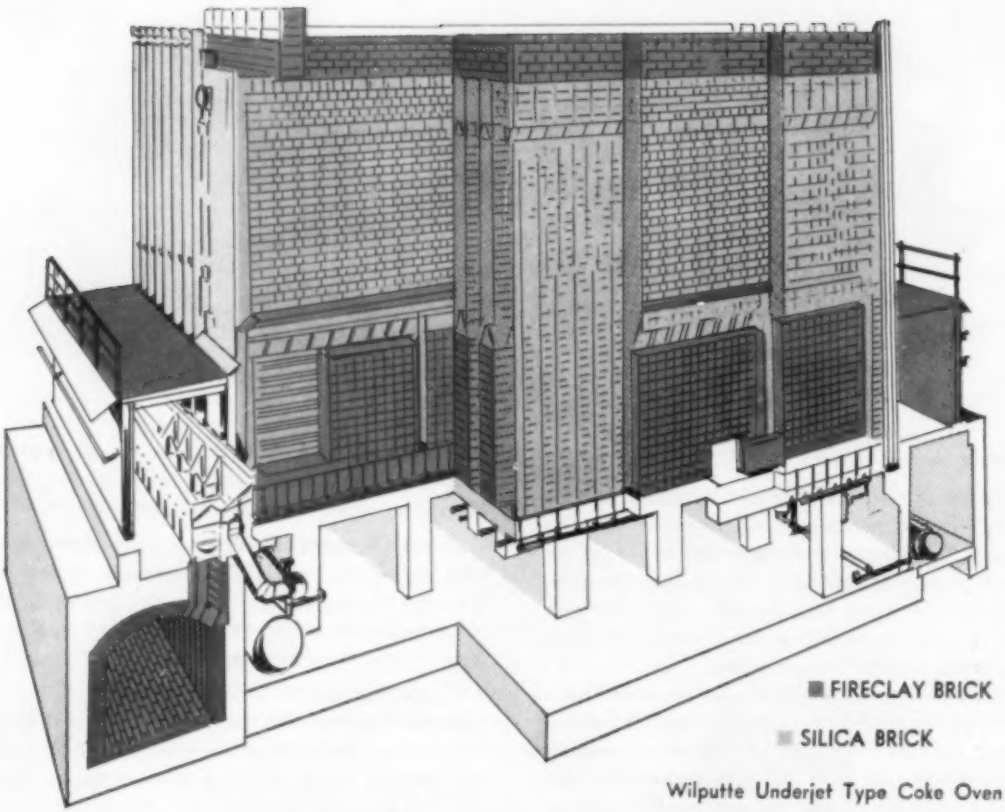
Frequently there is a layer of fireclay brick or insulation between the basic brick and the shell of the furnace. The roofs of the basic or acid furnaces are normally made with silica brick, although super duty fireclay, high alumina, or sillimanite brick are sometimes used because of their high melting points and spalling resistance. In some cases they yield better service than silica brick in the rings around the electrode openings, or in the outer rings of the roof adjacent to the water-cooled skewback.

### *Pouring Ladles*

Pouring ladles and transfer ladles are of three general types: (1) lip-pour, (2) teapot, and (3) bottom-tap. The larger ladles are usually lined with refractory brick and the smaller ones with a monolithic lining. Large lip pour ladles are often provided with fireclay skimmer brick, to hold back the slag when the metal is poured. Fireclay brick are generally used in the bottom even when the rest of the lining consists of monolithic material. Teapot ladles of medium size may be lined with plastic fire brick or with a mixture of ganister and clay. The pouring spouts are built of special shapes of either fireclay or silica material. Large bottom-tap ladles are usually lined with fireclay brick. They are equipped with stopper-rod assemblies of fireclay material, consisting of sleeves, stoppers and nozzles.

In the steel plant, the materials used for lining the ladles are standard sizes of brick, modified shapes, and ramming mixes. The large ladles employed in open-hearth and electric steel plants are generally lined with a special kind of fireclay brick which has the property of expanding considerably when heated to operating temperatures. The expansion helps to make tight linings. However, a more refractory ladle brick which does not expand finds application also.

In foundry practice, mixing ladles may have either brick or monolithic linings depending on the size and shape of the ladles and service conditions. The lining material employed is usually high-fired fireclay brick of super duty quality or plastic fire brick. In most mixing ladles, the refractory linings have a backing of insulating fire brick or bulk insulation. Receiving and holding ladles are generally lined with either super duty or high duty fireclay brick, usually with a backing of insulating fire brick.




Wilputte Underjet Type Coke Oven

## Coke Ovens

Most coke today used in the steel industry is now produced in by-product ovens. However, bee-hive ovens still continue in use although they are less efficient and waste volatile products. Both types of ovens use large volumes of refractories. A battery of by-product ovens is the largest single unit installation of refractory materials, being built of millions of refractory brick. While bee-hive ovens are small individually, they are built in long rows of many ovens large quantities of brick.

Silica brick and fireclay brick are the principal refractories used in by-product ovens. The coke oven designers specify the exact parts of the oven where each refractory is installed. Silica brick are preferred to fire-clay brick for the highest temperature sections because of their ability to stand high compressive load at the high temperature without shrinkage. Specially made silica brick for by-product coke oven service are sometimes supplies, featuring the exacting workmanship which is necessary for the proper assembly of the oven. The fireclay brick should be of high duty quality where temperatures in excess of 1800°F are encountered.

In bee-hive coke ovens, high duty fireclay brick are recommended for oven bottoms and side walls. For construction of crowns, silica brick is usually specified.

## *Hot Metal Cars*

When a blast furnace is tapped, the molten iron product is run into large refractory lined ladles for transportation to pig casting machines, or to the open hearths or to the bessemers for further refining. The ladles vary in capacity from about 40 to 250 tons.

In operation, hot metal ladles are repeatedly filled and emptied after holding the molten metal for various periods of time. Generally no fuel is used to keep the iron molten and the ladles are emptied within a few hours after filling. The refractory service conditions which the ladles linings must withstand are moderate conditions —from 2300°F to 2800°F—moderate thermal shock, chemical attack by slags and washing action of the molten metal during filling and emptying. Hard fired, high duty fireclay brick give the best service in this application, particularly when laid up with sillimanite mortar in the brickwork joints which are most liable to attack. Regular high duty fireclay brick laid with the fireclay mortars are also used for hot metal car linings.

### *Malleable Iron Furnaces*

Malleable iron is usually produced in reverberatory air furnaces or malleable furnaces, using either cold metal charge, or hot metal from the cupola in the duplex. A malleable furnace consists of a bottom, two side walls, roof, front wall, rear bride wall and stack.

Bottoms may be made either of sand, brick on sand, or all brick. Most furnaces have air cooled bottoms supported on a metal plate. Brick working hearths or service bottoms are generally 9 inches thick and may be installed directly on sand or on a brick subhearth. The service bottom has either a concave or convex arch across the furnace and slopes down to the tap hole from all directions. The bottom brick usually extend only between the side walls. They must be laid with high-temperature bonding mortar, and keyed tightly, to prevent floating caused by metal penetration of the joints. Super duty fireclay brick are normally used for service bottoms of all types. However, some operators have found that 60% alumina brick give better service.

Side walls are usually 13½ inches thick with a 9-inch service wall, built of fireclay brick, laid with thin fireclay joints. The principal cause of side wall failure is the corrosive action of slag high in iron oxide content. Slag attack is most severe near the slag line, and the wall is often undercut to an extent which causes early failure. Spalling also contributes to failure of upper side walls in cold charge furnaces. High duty, dense, de-aired, stiff mud, fireclay brick are generally used in side walls. Super duty brick are recommended where conditions are unusually severe.

The roof is made up of removable arches or bungs. These bungs are made up of refractory shapes, which are supported in suitably designed metal frames, and held tightly in place by clamps actuated by bolts, in each end of the frame. The roof thickness is commonly 4½ inches and a special quality fireclay brick designated as "Bung" is used. Bung brick must withstand extremely high temperature and rapid temperature changes and must be straight to prevent breaking under high pressure of the bung frames. The brick should be laid with thin joints of highest quality fireclays or bonding mortars.

### *Soaking Pits*

A soaking pit is a refractory lined chamber, used to heat steel ingots to a uniform temperature for forging or rolling. Modern pits are used both as unheated "soaking pits" and as heating furnaces to heat partially hot or cold ingots.

The service conditions on refractories vary greatly in different parts of the pit. Upper side wall brick must have good resistance to spalling. The brick for the middle section of the wall must also withstand the same general conditions, plus abrasion and physical abuse from being hit by ingots. Silica brick give superior service in these locations although sometimes high duty and super duty brick are used.

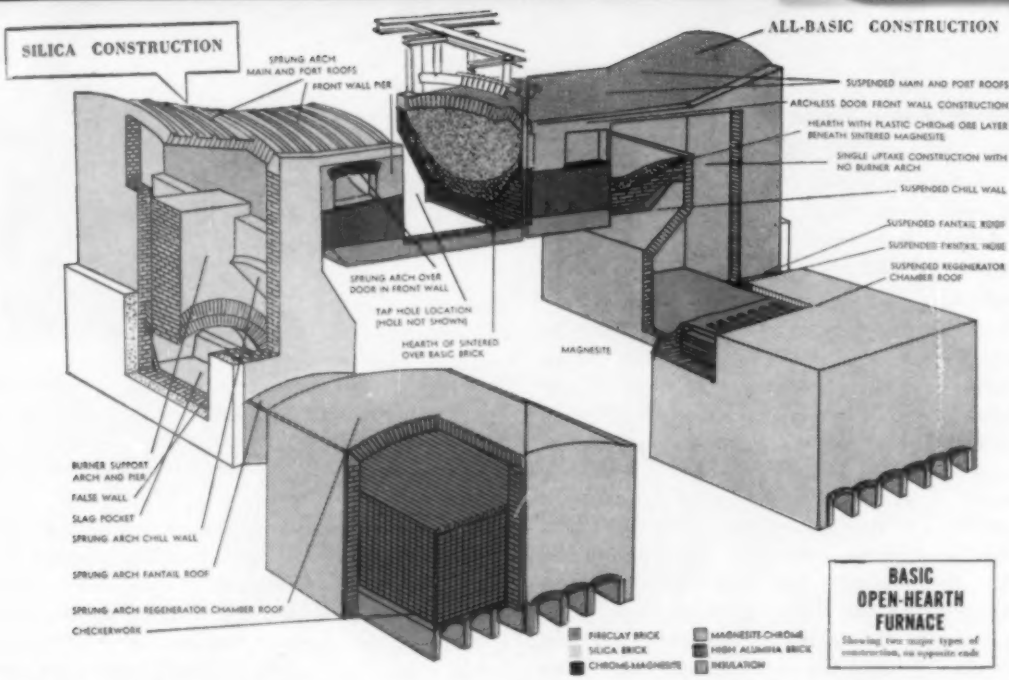
The top few courses of brick in side walls are destroyed by vitrification shrinkage, slag, abrasion and rapid temperature changes. The brick are usually high duty or super duty fireclay brick. Large special shapes called coping tile are often used in this location. Plastic chrome ore or plastic firebrick are used often for the sand seal troughs between pit walls and cover.

The side walls near the bottom are subject to attack by iron oxide and some damage during bottom cleaning. Unburned magnesite-chrome brick laid in chrome base mortar are recommended for severe conditions. Chrome-magnesite brick are usually used where iron oxide attack is less severe. High alumina brick or even dense high duty fireclay brick are satisfactory where the temperature is low or the brick are protected from iron oxide. Protection from iron oxide can be provided by covering the brick with a heavy layer of plastic chrome ore.

### *Hot Blast Stove*

The function of a hot blast stove is to preheat the air supplied to a blast furnace. Rrefractories for blast stoves must possess a definite combination of properties. The essential qualities of stove brick are capacity to absorb heat readily from the hot gases, ability to give off this heat rapidly to the air blown through the stove, mechanical strength at both hot and cold temperatures, and high resistance to vitrification, to deformation, to the harmful influences of reducing gases, to fumes and dust high in alkalies, and to the spalling effects of rapid temperature changes.

The service conditions to which refractories are exposed in this type of stove are high temperatures up to 2600° F. in the combustion wall, dome and upper checkerwork, and moderate temperatures with extremely heavy loads in the lower sections of the checkerwork and walls. High duty fireclay brick are used for most sections but super duty fireclay brick are frequently used for combustion wall inner linings and for the top few feet of the checkerwork, where the higher temperatures are prevalent.




## *Open Hearth Furnaces*

Open-hearth furnaces are by far the largest consumer of refractories, using approximately one-half of all brick and bulk refractories produced. The service conditions which refractories must meet in open-hearth furnaces are extremely severe. High temperatures, chemical attack by slags containing iron oxide and other fluxes, heavy loads, wide temperature fluctuations, abrasion, and mechanical abuse all combine to destroy refractories at various sections of the furnace. To meet these conditions, many different types of refractories must be used.

The hearth of the furnace must endure high temperatures, attack by slags and abrasive action by the violently boiling metal bath. The working surface must be strong, dense and chemically resistant. For basic open-hearth furnace operations in which basic slags (slags high in lime) are used for purifying the metal, sintered grain magnesite or rammed magnesia hearths are used. It is usually dressed or surfaced after each heat with granular dolomite, either raw or calcined, but large repairs are usually made with grain magnesite or prepared dolomitic-magnesia materials. For acid open-hearths in which a siliceous slag is used for purifying the metal, the bottom is made of a silica sand, sintered in place. All repairs are likewise made with silica sand.

Beneath the working hearth, the subhearth is usually constructed of refractory brick. Any of the various basic brick are used in this position in basic furnaces and silica brick are used in acid furnaces. The brick usually lie on one or two courses of clay refractories which are in contact with the steel pan forming the outside of the furnace.

The front wall and back wall of a furnace are subjected to high temperatures, slag attack, temperature fluctuation and mechanical abuse. Unburned basic refractories are well suited for this service in basic furnaces. Good results are obtained when using a basic brick with a protective coating of steel surrounding it. Silica brick are used for these wall sections in acid open-hearth furnaces.

The roof of the furnace proper must withstand extreme temperatures and chemical attack by iron oxide vapors and furnace dusts. Both silica and basic refractories are used for this service. Furnace production is limited in silica-roofed furnaces by the fact that operating temperatures must be kept below the melting point of the silica brick (about 3050° F.). If it is desirable to exceed this temperature, basic roof refractories are used. The basic brick are suspended from a steel superstructure while silica refractures are usually laid in a sprung arch. With the faster driving of furnaces for increased production, more and more consideration is being given to basic roof, (about 9 installations by end of '57).

The furnace and structures are exposed to high temperatures, though not as high as the roof, front wall and back wall. They are also subjected to chemical attack and to heavy compressive loads and high-velocity flux-laden gases.

Basic or silica refractories are used in this section. When silica refractories are used alone the entire structure is heavy masonry, with thick walls and massive support arches. Basic refractories, usually laid in support construction, offer many advantages. Thinner walls can be used and the support arches can be made smaller or eliminated, making the ends more open to gas flow. Additional advantages are the longer life of the basic brick, the increased furnace availability resulting from decreased repairs, the ease of repairs, and simple construction.

### *Cupola Furnace*

In foundry practice, the cupola furnace is used mainly for melting gray iron. The working lining, in the charging zone of the cupola, is destroyed mainly by the abrasive action of the blast and the descending charge. Best results are usually obtained by the use of fireclay radial cupola blocks made by the stiff-mud process. For severe service, the back up lining should be of the same quality as the working lining.

The most severe service conditions are in the melting zone near the nozzles that admit the blast air into the cupola. The lining is rapidly destroyed by the combined action of slag, flame erosion, and abrasion. Length of service depends on a number of factors, most important of which are the type of charge, kind and amount of flux, ash content of the coke, velocity of the blast, tapping temperature and character and continuity of operation. Melting zones are usually lined with fireclay radial cupola blocks, the exact quality depending on local conditions. High duty and intermediate duty qualities are used most extensively, although super duty fireclay quality is recommended for the most severe conditions. Even with the best linings, service life is short and the lining must occasionally be brought back to original dimensions by patching or replacement. Patching should be done with stiff-mud, high duty fireclay splits, or larger sizes, held in place with stiff daubing material of crushed firebrick, silica sand, and high grade fireclay.

### *Heating Furnace*

"Heating" or "Reheating" furnaces are used to heat either cold or partially heated ingots to the temperature required for further processing. The wide differences in furnaces design and operation are naturally accompanied by great variations in the severity of the service to which the refractories are exposed. Among the factors which have a bearing upon the life of the linings are the continuity of operation, the kind of fuel, the temperature, the furnace atmosphere, the character of the flame, the rapidity of temperature fluctuations, the degree of abrasive action, the corrosive effect of any iron scale or ash which may be present, and mechanical abuse.

Generally speaking, service conditions are such, that for the purpose of discussing refractories, the furnace may be divided into three sections: The hearth, the roof, and the side walls.

Among the factors that determine the type of refractory material best adapted for service in heating furnace hearths are the temperature, the amount of scale, and the degree of mechanical abrasion. Depending on the service conditions, the hearth may be built of dense, tough, high duty or super duty fireclay brick or high alumina brick of the 70% alumina class. Hard burned chrome or magnetite brick are sometimes used successfully. Chrome brick have high mechanical strength and resistance to penetration and attack by molten scale. Magnesite brick are strong and highly refractory; they have the property of ability to absorb large amounts of iron oxide with little change in strength and rigidity.

In the side walls, the classes of refractories most generally used are high duty and super duty fireclay brick. For extremely severe conditions the use of high alumina brick is often an economy. In many cases it is advisable to use several courses of chrome brick along the walls where molten metal comes in contact with the refractories.

In general, the roofs are subjected to the same conditions which the side walls must endure. In sprung arch roofs an additional factor of importance is the stress from the thrust of the arch. In the roofs as in the side walls, the type of fuel employed may influence the choice of refractories. The alkalies in the ash of fuel have a strong corrosive effect. The resistance of alumina-silica brick to this effect increases with increasing alumina content.

Sprung arch roofs of heating furnaces which are seldom shut down may be built with silica brick or high duty or super duty fireclay brick. High alumina or sillimanite brick should be used for extremely severe conditions. All brick should be laid with thin joints of a mortar similar in quality to that of the refractory brick.

Auxiliary equipment for heating furnaces includes regenerator chambers, flues and stacks. High duty fireclay or super duty fireclay brick are normally used in recuperator and regenerator walls as well as for checkers. Intermediate duty or low duty fireclay brick are satisfactory for flues and stacks.

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### Credits

For special assistance in preparing the material for this Annual Refractories Issue, we owe thanks to these people and companies:

We were greatly aided in preparing the Refractories In Steel section by E. H. Cauger, Ass't. General Manager, Wheeling Steel Corp.; Jones & Laughlin Steel Corp.; Kaiser Steel Corp.; U. S. Steel Corp.; Bethlehem Steel Co.; Posey Iron Works; Inland Steel Co.; and several others.

Drawings of the various furnaces used in steel manufacturing were by courtesy of General Refractories Co. Photos were supplied by the U. S. Army and Navy, RCA Victor, Douglas Aircraft, Chris-Craft Corp., the Hoover Co., the New York Central Railroad, General Motors Corp.

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Business Leaders Predict

# Steel, Other Industry To Keep Refractory Use At High Level

### The Entire Economy — 1957

"The boom is getting older but not necessarily tired," believes Dr. Emerson P. Schmidt, Director of Economic Reserach for the U. S. Chamber of Commerce. "Moderately better" than 1956 is the cautiously optimistic view of Schmidt, who feels that though we don't have all the favorable factors of Fall 1954 when this current phase of business began, the fundamental forces of long-run expansion are strong and our economy is fundamentally sound. "There are," Dr. Schmidt states, "no really serious dark clouds that we can see and most forecasters believe that 1957 will be a good year with slightly higher levels of employment and production than 1956."

"Now, more than ever before, the slogan is becoming a reality—'The 1950's belong to clay products' . . ." John H. Stewart, President, SCPI

### Structural Clay

Speaking as a man who has spent his adult life in the structural clay products industry, it seems to me that the prospects for the industry in the next 12 months look good. With construction expected to maintain its high level, the brick and structural tile manufacturers can look forward to a productive and rewarding year. The program of expansion and modernization which we witnessed in 1956 continues strong this year. All over the nation, manufacturers are employing the latest in equipment and techniques to make the highest quality product at the lowest cost.

The brick and tile industry itself has a new strength which comes from the regional and national unity of the Structural Clay Products Institute; from a vital research program in the Structural Clay Products Research Foundation; and from our membership in the intra-industry team called the Allied Masonry Council. Now, more than ever before, the slogan is becoming a reality—"The 1950's belong to clay products." —John H. Stewart, President, SCPI.

### Refractories

*Our level of business will be controlled entirely by the business activity of all other basic industries. Since it is generally considered that 1957 should be a year at least comparable with 1956 for these other industries, it would seem that our refractory industry should also enjoy good times during the coming year.—William S. Lowe, President, The Refractories Institute.*

## What's Ahead For Refractories

**Steel Modernization**

More than $1 billion a year in each of the next five years will have to be spent to replace worn and obsolete facilities in the steel industry. The amount recoverable in depreciation will be about $3 billion short of the $5 billion replacement total, requiring billions more spent to finance the expansion. The industry has spent $8 billion since World War II for new equipment and construction—Max D. Howell, Executive Vice President, American Iron & Steel Institute.

**Steel Industry**

Despite the strike, 1956 output will be only 2 million tons under the record set in 1955. The industry is producing at the greatest tonnage rate ever attained. I believe it will continue through the first half of 1957—Roger M. Blough, chairman, U. S.

Production and profits outlook is good. The 1957 total probably will not vary much from this year's 115 million tons; being perhaps slightly under—William S. Story, Public Relations Dir., Institute of Scrap Iron & Steel.

*We expect that the steel industry will make and sell more steel in 1957 than ever before in its history. Almost every economic indicator points to a record year ahead . . . in 1957, we look for steel production to break 1955's all-time record. Construction work we are now completing will raise our annual steelmaking capacity to 6,222,000 tons by mid-1957, a 21% increase over our capacity on January 1, 1956. A further indication of our confidence . . . is our plan to spend about $120 million in 1957 for improvements and expansion.—R. L. Gray, Pres., Armco Steel Corp.*

"We look to 1957 as a year of great accomplishment for the steel industry and for Jones & Laughlin . . ." Admiral Ben Moreel, Board Chairman, Jones & Laughlin Steel

Jones & Laughlin will begin the 1957 well-advanced on a stepped-up cost reduction and expansion program which is scheduled to cost $320 million during the three-year period from January 1956 through December, 1958. As far ahead as we can see in 1957 there is every indication that the industry will produce steel at an unprecedented rate. Because of unsettled world conditions, it is not prudent to look ahead more than six months. However, under any probable conditions the steel industry should approach full capacity operations in 1957. Over the next ten years, there appears to be general agreement that we must add to existing capacity approximately 35 million ingot tons of annual capacity, or an average of 3½ million tons per year. We look to 1957 as a year of great accomplishment for the steel industry and for J&L—Admiral Ben Moreel, Board Chairman, Jones & Laughlin Steel Corp.

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## What's Ahead For Refractories

**Glass**
The flat glass industry is closing its second best year of sales and profits and the year of its greatest plant expansion. With indications of continuing large volumes of construction, both residential and commercial, and the impetus of new models in in the automobile industry, the outlook for glass in 1957 is favorable, according to John D. Biggers, Chairman and George P. MacNichol, Jr., President, Libbey-Owens-Ford Glass Co. L-O-F in less than 16 months has invested more than $54 million in new plants.

**Plants & Equipment**
*Expected spending for plants and new equipment during the first quarter of 1957 will be at an annual rate of some $38 billion, compared with first quarter rates of $32.8 billion in 1956, according to the U. S. Commerce Dept. and SEC predictions for manufacturing. Included in this figure will be capital spending of $149 million in the stone, clay and glass industries, compared with $132 million in 1956. Total capital expenditure for all manufacturing and other industries is predicted to be $87 billion.*

**An Architect Says . . .**
*"The building picture looks bright for 1957, so far as work currently on the boards is an accuarte barometer. Federal, state and local building programs; unfilled needs in school, health and church fields all are contributing toward architects activity"—Edmund R. Purves, Executive Director, AIA.*

**Housing**
*Nat Rogg, Economic Director of the National Association of Home Builders feels that while 1957 will be slow in starting for the home building industry, there is the possibility of a pickup somewhere along the way. Starts, according to Rogg, should approximate the 1956 total of 1.1 million. He sees a trend toward bigger, more expensive homes with the median price of the 1957 house at $15,200 compared to $14,700 for the 1956 house.*

**Ceramic Tile**
*Increased demand for quality building materials in all types of construction will keep sales of ceramic floor and wall tile at record levels during 1957. All industry manufacturers are geared for further expansion during the next two years. In the years ahead, tile companies look for real market expansion in commercial and institutional construction, particularly schools, which offer a $15 billion market in the next four or five years with the tile people expected to capture 2% or $300 million of that total —Robert E. Anderson, President, Tile Council of America.*

**Aluminum Outlook**
*Steel Magazine has predicted these production totals for aluminum production in the U. S.: In net tons, Jan. 1, 1957, 1.7 million; Jan. 1, 1958, 2.1 million; Jan. 1, 1959, 2.4 million. Production in 1955 was about 1.57 million tons. Steel predicts that by 1975, aluminum capacity will be two and a half times current potential.*

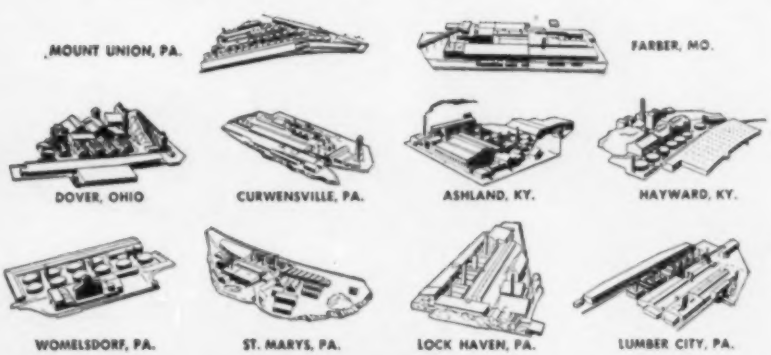
**Glass Block**
*During 1957, results of an extensive research program should show dividends with the introduction of new products and new applications of established lines. The 1956 business picture was highlighted by continually increasing sales of Foamglas and glass block. An expansion program during the year resulted in a 50% increase in capacity—Paul D. Japp, General Sales Mgr., Pittsburgh Corning Corp.*

Quality-controlled to serve...

**HIGH ALUMINA·FIRE CLAY·SILICA BRICK**

**Mortars · Plastics · Castables · Gun Mixes**

*backed by over 100 years of experience in refractories*

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Firebrick
Reduce production costs in periodic kilns
firing structural clay products
Here's cost-saving data for you
This new B&W bulletin contains helpful data on many counts. It gives (1) basic facts about B&W Insulating Firebrick; (2) advantage of using IFB in regular and salt glazing periodic kilns; (3) proof of economy and long life. • Send for your copy of bulletin R-43 today.
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# INCREASED DENSITY—UNIFORMITY
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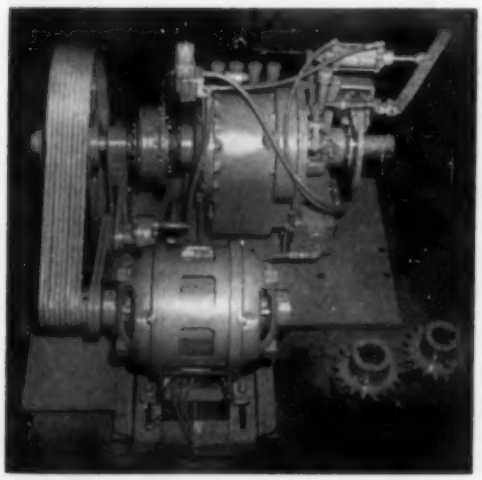
# LOWER COST?



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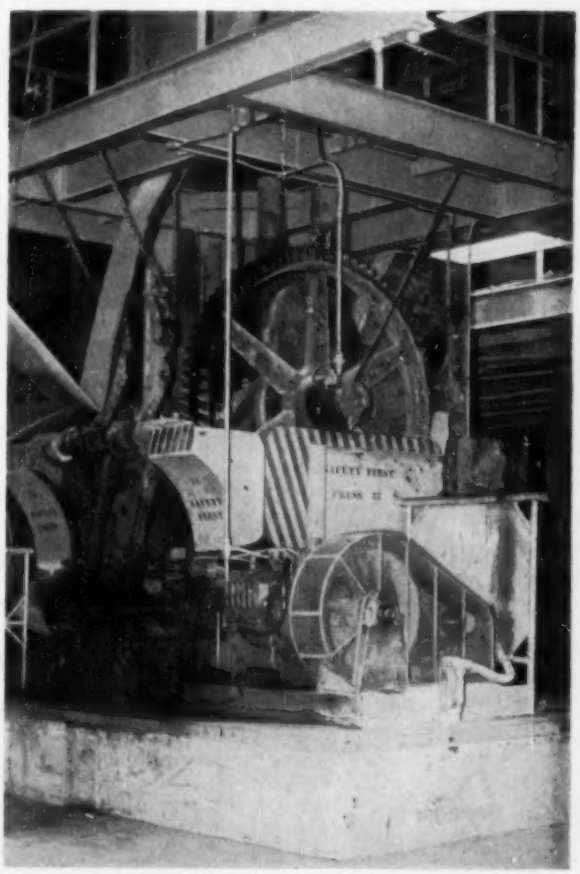
# INVESTIGATE THE WESTERN MULTI-SPEED BRICK PRESS DRIVE

A BOYD "Y" PRESS IN A LARGE MID-WESTERN REFRACTORIES PLANT AVAILABLE WITH STRAIGHT V-BELT & MOTOR DRIVE OR MOTORIZED TORQUE CONVERTER AND V-BELT DRIVE (another Western product)

PHOTOGRAPH—COURTESY OF A. P. GREEN FIRE BRICK CO., MEXICO, MO.



## Western Machinery & Engine Co.

320 South Grand
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*Mfg. by — Oretruc Mfg. Co.*

*Products of fame*

*wherever there's flame...*

Keeping flame on the job is the business of brick. Refractory brick to contain the flame and put it to work with efficiency and economy in the furnaces of industry.

Grefco refractory products have long been famed for doing this job reliably. Grefco brick, special shapes, mortars, plastics and castables to hold the heat and help create products for the service of industry.

If your operation requires *flame*, here's the name . . . *Grefco!*

*A Complete Refractories Service . . .*

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**GENERAL REFRACTORIES COMPANY**

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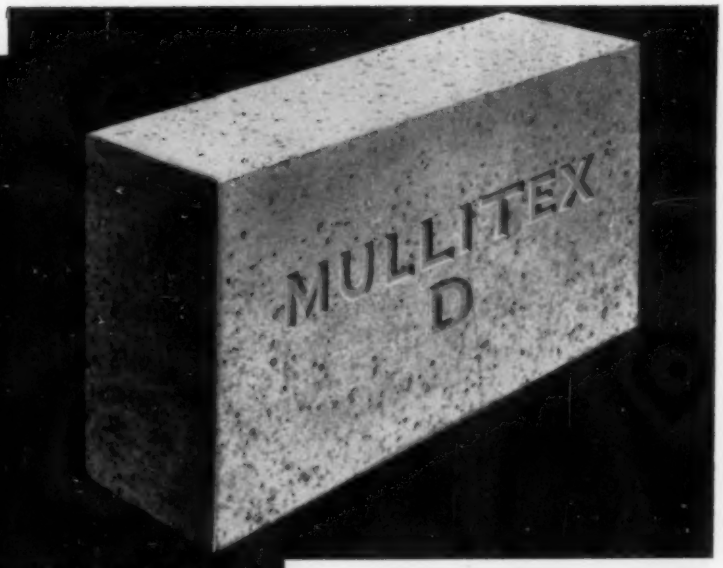
# NOW!

## GET ALL FIVE WITH NEW MULLITEX D EXTRA DUTY FIRE BRICK




**Desirable properties sought by the Steel Industry in a Super duty grade firebrick . . . properties of high bulk density, hardness and low spall in a single refractory . . . have been incorporated in new Mullitex D.**

1. RESISTANCE TO PENETRATION
2. RESISTANCE TO ABRASION
3. RESISTANCE TO SLAG
4. RESISTANCE TO METAL WASH
5. RESISTANCE TO THERMAL SHOCK

**Recommended Uses for Walsh Super Duty Fire Brick**

Lining closed and semi-closed hot iron ladles; checker brick for hot blast stoves and open hearth furnaces; hot metal mixers; fantail arches; soaking pit covers and kindred applications.

**With the timely introduction of Mullitex D, Walsh now offers the Steel Industry a more complete line of Missouri-Quality super duty refractories, backed by 60 years of solid and successful experience in the manufacture of high grade fire brick. For all the money-saving facts, contact the nearest Walsh representative, or write for full particulars.**

**APEX,** Super Duty Grade Fire Brick are characterized by highest bulk density in fireclay products; maximum resistance to abrasion, slag penetration and metal wash.

**MULLITEX HB,** Super Duty Grade Fire Brick, are noted for high hot load bearing strength, producing volume stability at molten steel temperatures under continuous hot metal load.

*Specialists in refractories of high bulk density and low porosity*

## WALSH REFRACTORIES CORPORATION

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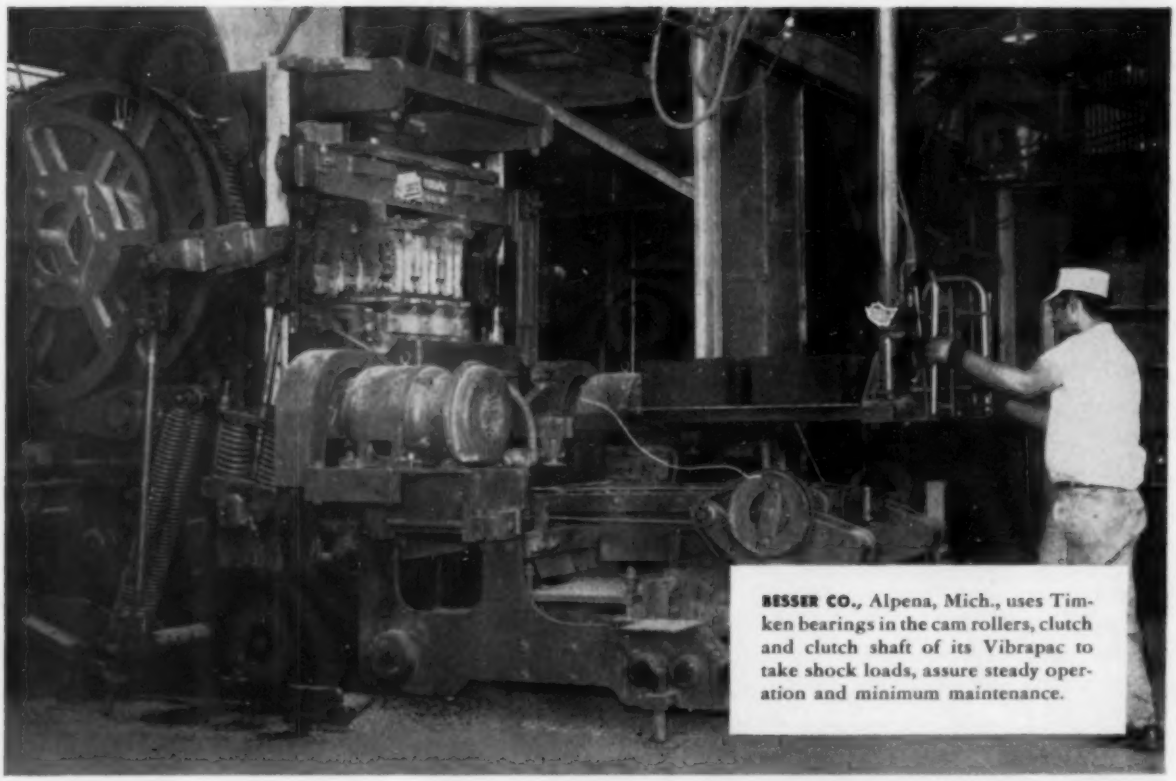
FOR OVER 60 YEARS MANUFACTURERS OF HIGH GRADE REFRACTORIES



**BESSER CO.**, Alpena, Mich., uses Timken bearings in the cam rollers, clutch and clutch shaft of its Vibrapac to take shock loads, assure steady operation and minimum maintenance.

# Makes 15,000 concrete blocks a day, TIMKEN® bearings block the shocks

THIS Vibrapac concrete block machine forces concrete into molds under a vibrating pressure of 2000 lbs., turns out 15,000 blocks a day. That puts thousands of shocks on the Vibrapac's vital moving parts. To help them roll with the punches, Besser Co. engineers specified Timken® tapered roller bearings for the cam rollers, clutch, clutch shaft and the mixer's fixed position blade shaft.

Timken bearings take the shocks because their rollers and races are case-carburized to have tough, shock-resistant cores under hard, wear-resistant surfaces. Because of their tapered construction, Timken bearings take radial and thrust loads or any combination. And full line contact between rollers and races gives Timken bearings extra load-carrying capacity.

Timken bearings keep housings and shafts concentric. Clutch parts stay aligned. Gears mesh smoothly and accurately. Closures are more effective. Lubricant stays in. Dust, dirt and moisture stay out. Wear and maintenance are reduced.

Timken bearings save power because they're designed by geometrical law to have true rolling motion and manufactured with microscopic accuracy to live up to their design. They practically eliminate costly friction, keep machines operating smoothly, economically.

No other bearing gives you all the advantages that Timken bearings give you. Always specify them for the machines you buy or build. Be sure the trade-mark "Timken" is on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN BEARING EQUIPPED — *This symbol on a product means its bearings are the best.*

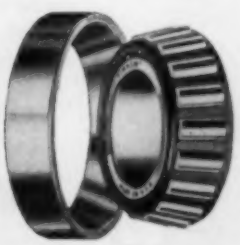
## IT'S TIMKEN BEARINGS FOR VALUE!

To get the best value in bearings you may find this simple formula helpful:

$$Value = \frac{quality + service + public\ acceptance}{price}$$

Obviously a big advantage *above* the line gives you more value than a small one *below*. No other bearing can match the uniform high quality, engineering and field service and overwhelming public acceptance you get with Timken bearings.

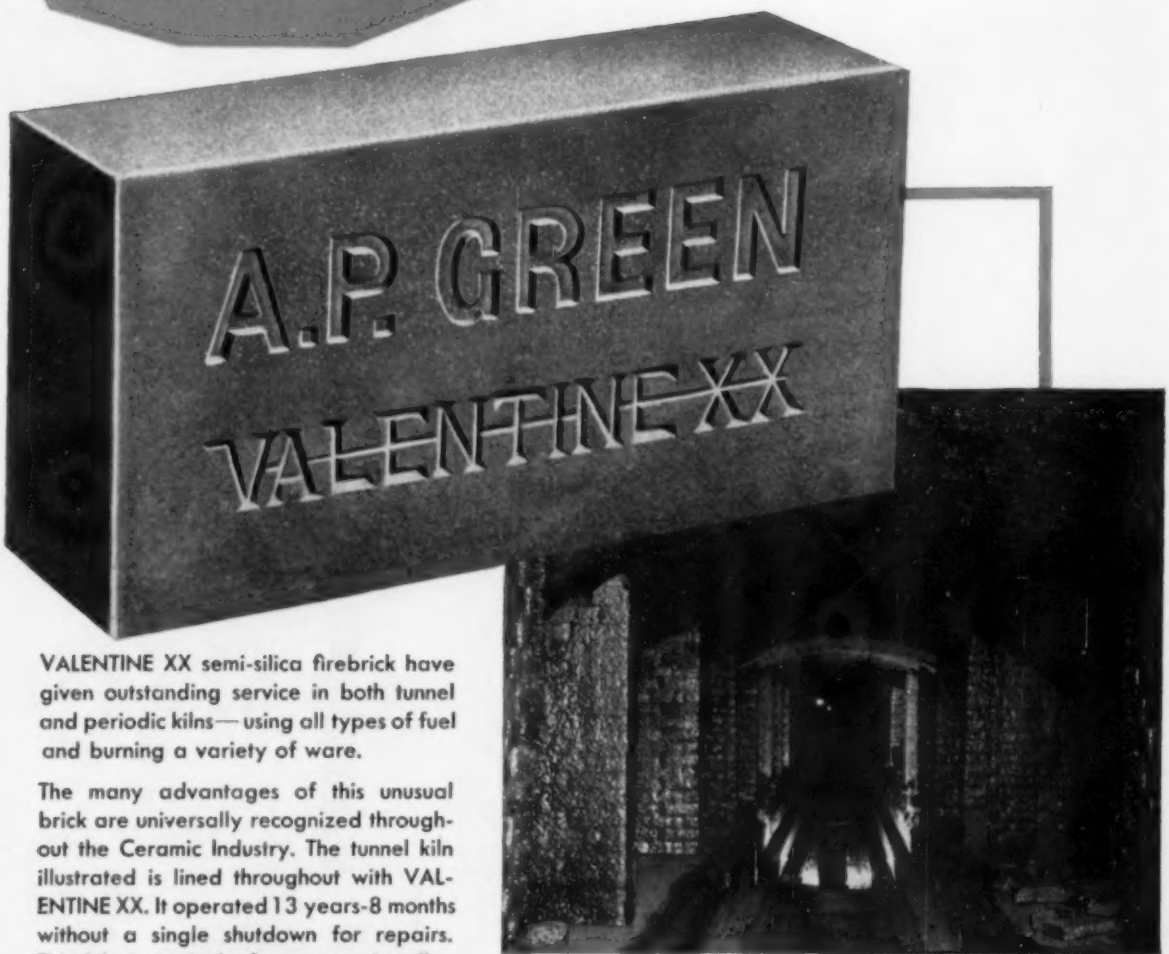
**TIMKEN**
TRADE-MARK REG. U. S. PAT. OFF.
*TAPERED ROLLER BEARINGS*



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◊ AND THRUST →◊← LOADS OR ANY COMBINATION →✳←

YOUR ASSURANCE AGAINST COSTLY REPAIRS AND SHUTDOWNS

# VALENTINE XX...




VALENTINE XX semi-silica firebrick have given outstanding service in both tunnel and periodic kilns—using all types of fuel and burning a variety of ware.

The many advantages of this unusual brick are universally recognized throughout the Ceramic Industry. The tunnel kiln illustrated is lined throughout with VALENTINE XX. It operated 13 years-8 months without a single shutdown for repairs. This kiln is typical of numerous installations in which VALENTINE XX has proved its superiority. The baffle walls between burners, completely surrounded by intense heat, showed no shrinkage or deformation under load. The unique property of VALENTINE XX to form a refractory glaze on the surface has protected the crown ... no joint erosion or settling over many years of service.

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An authorized A. P. Green distributor, trained in refractory problems, is close to your job to give you the kind of quality workmanship your refractory job demands. He has complete stock of VALENTINE XX firebrick and other high quality A. P. Green Refractories ... and he is backed by the engineering staff of the A. P. Green Fire Brick Company. VALENTINE XX is manufactured at our Woodbridge Division at Woodbridge, New Jersey.

*A. P. Green*
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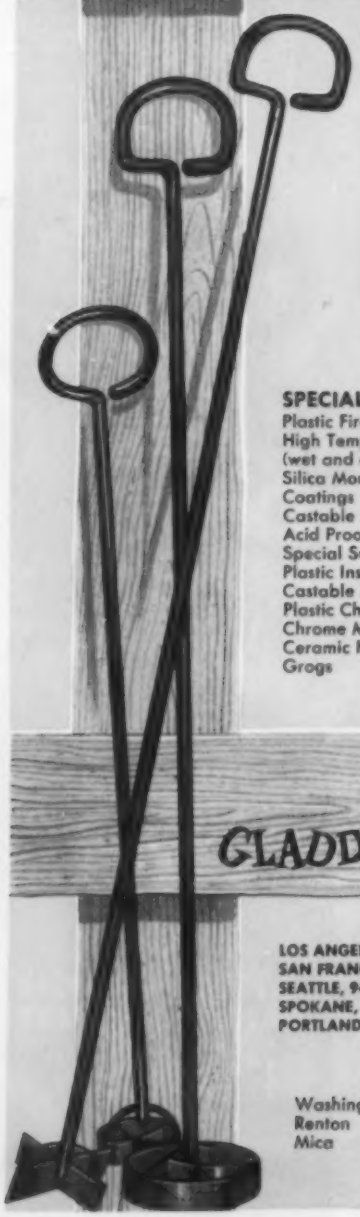
*Please say "I saw It in B&CR"*

traditional brands of the old west



## REFRACTORIES by Gladding, McBean
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Wherever you go in the industrial centers of the Pacific Coast, Pacific Northwest and adjacent states, you'll find these famous brands of refractories...lining and controlling the high temperatures of the furnaces from which come the necessities of modern living.

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**BRICK**
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# Many Users Say This Belt Outlasts Them ALL In Hard Rock Mining

The Ray-Man Conveyor Belt features a new and different construction of covers and strength member to resist cuts, tears and abrasion to a degree never before attained. R/M's exclusive "XDC" Cover provides a degree of protection and long life not possible with any other belt. Inside this cover, Ray-Man Conveyor Belt combines elastic cushioned strength member plies in an envelope of strong, yet flexible synthetic fabric to resist gouging and tearing ... to take the impact of large, abrasive lumps... to permit the belt to trough easily and train naturally.

Like all Manhattan heavy duty conveyor belts, Ray-Man is moisture resistant and mildew-proof. It requires no breaker strip and holds fasteners considerably better than other types of belts. Let an R/M representative show you the advantages of Ray-Man as well as other R/M conveyor belts, including Homocord, with its extra cushion for unusually abusive shock loading. He'll help you select the belt best suited for your job . . . one designed to give you "More Use per Dollar." Write for Bulletins 6906 and 6915.

RM-600M

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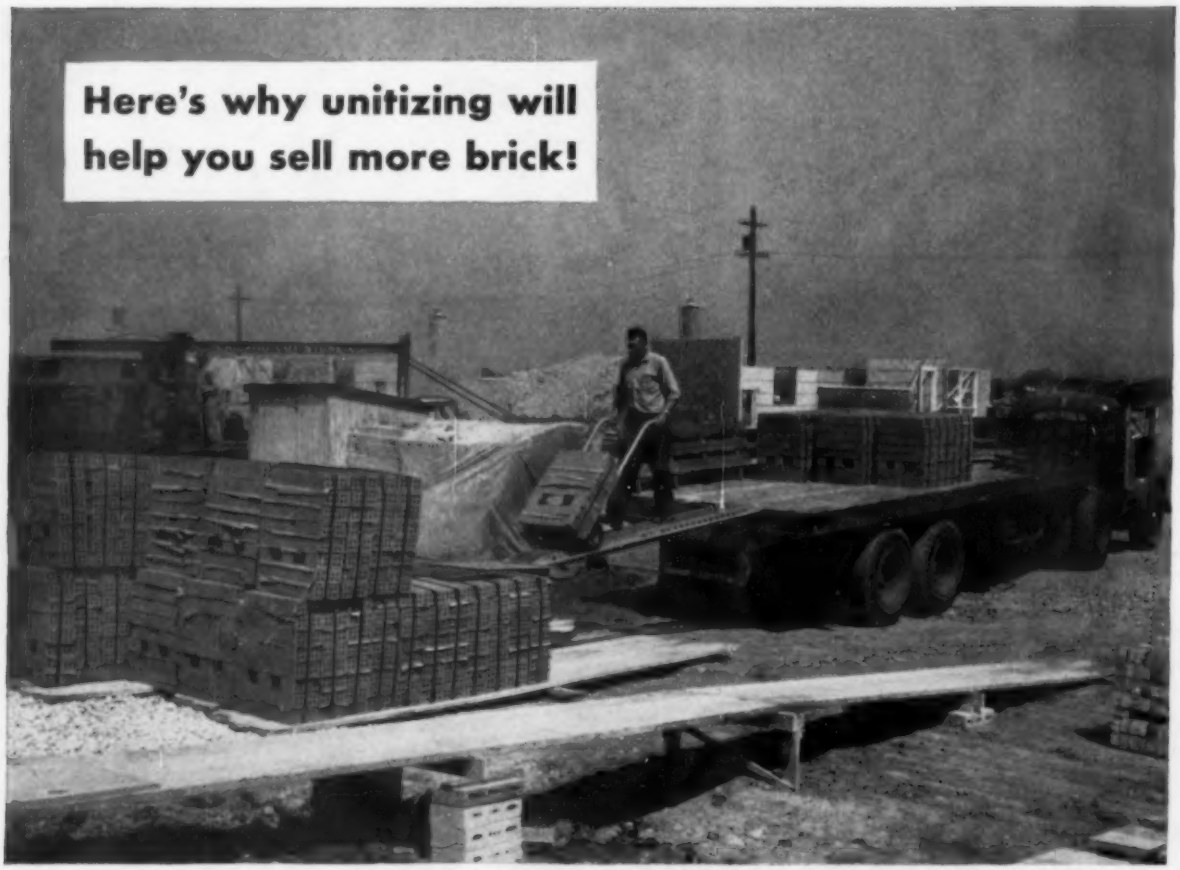


Unloading is fast with 75-brick multi-pack. Note 2-high stacking of packs.

# Unitized brick bring speed, savings, safety to small homes project

Can unitized brick cut costs for the mason contractor on small homes as it does on the big jobs?

On a project of 104 small houses, Harold Peterson, well-known Chicago mason contractor, reports a 5% reduction in over-all masonry costs as the result of using a steel-strapped 75-brick pack. Other advantages gained include reduction of breakage, prevention of pilferage, practically automatic inventory, neater housekeeping, safer working conditions and faster, easier wall erection.

"Advantages like these are bound to result in more use of brick and in benefits to all, from brick manufacturer to home buyer," Mr. Peterson comments.

Inexpensive carts, ramps and mats permit any contractor to obtain these advantages. On this project, a simple hydraulic hoist was used to get the brick onto the scaffold.

Signode can help you make the most of unitizing's advantages on any size job. Consult the Signode man near you, or write.

**See the new Signode motion picture, "Masonry Goes Modern." Sound and color. For information, write Signode in Chicago.**

Harold Peterson, mason contractor, raising brick to scaffold with hydraulic-powered, foot-operated hoist.

**SIGNODE STEEL STRAPPING CO.**

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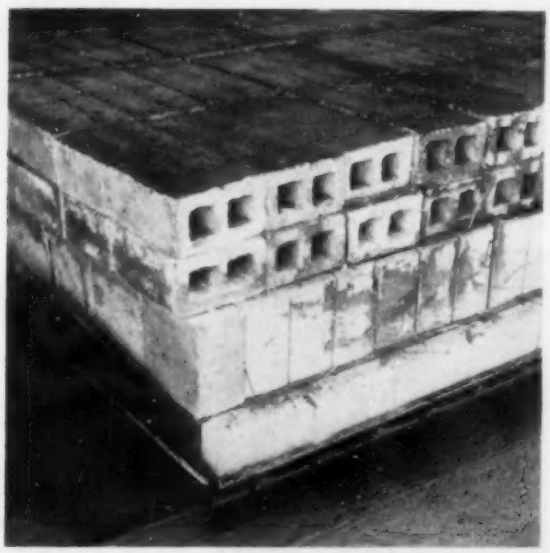
PACO

# CAR TOPS

## S-t-r-e-t-c-h

*your dollar twice as far!*



PACO CAR TOPS are stronger—give better heat distribution—produce uniform ware—and last longer!

In plant after plant, PACO CAR TOPS have cut replacement cost up to 50%! You can also enjoy this increased economy. There is a PACO engineer as close as your telephone—place your trial order now and let the product prove itself. For complete information on sizes, prices and delivery, write or call us without obligation.

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**NORTH STATE PYROPHYLLITE COMPANY, INC.**

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Guarantees to our customers Safe,
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Always Dependable
Globe Superior Ladle Bricks are
used everywhere for all types of
Iron and Steel ladles

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East Liverpool, Ohio

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Is Better Mixing

THE *Lancaster*
MIXER

Model EBG-4½ capacities to 45 cu. ft.

*"Lancaster"* Mixers have become a popular selection in many refractories plants because:
(1) Their ability to turn out batch after batch with unfailing accuracy and uniformity has been clearly demonstrated
(2) Thorough mixing and mulling is achieved without destroying the sizes or shapes of the granular particles
(3) Predetermined amounts of liquid binders are accurately and dependably dispersed, avoiding lumps or nodules which contain wet centers
(4) Their scientific counter-current mixing and balanced mulling action improves product quality and reduces waste.

The "LANCASTER" system employs a clockwise rotating pan, counter-clockwise rotating tools, plus a balanced mulling action . . . a proved method for rapid uniform batch mixing

IN THE CONCEPT OF THE MODERN TREND

Automatic cycling of the mixing operation is available through the "LANCASTER" Panel Board Type Fully Automatic Control System, combined with water metering and spray equipment. Increased production, substantial elimination of human error, and reduced man-power requirements are some of the cost-cutting advantages. Full information and quotation without obligation.

POSEY IRON WORKS, INC.
Brick Machinery and Mixer Division
LANCASTER, PENNSYLVANIA
New York Office: Graybar Building

# SMOOTH OPERATOR

Yale Gas Truck stacking brick at Old Fort Supply Co., Inc., Fort Wayne, Ind.

## CUSHIONS SHOCKS! YALE TRUCKS EASY ON OPERATORS, EASY TO MANEUVER

They do *more* work—these powerful, smooth moving Yale Gas Trucks. But your operator does *less*—because Yale Trucks are easy to handle and maneuver. They're specially engineered to cushion shocks—to protect your driver against the fatigue that results from shocks. Your choice of fully automatic Yale Torque Transmission, Yale Fluid Coupling or standard transmission—and either wide-tread pneumatic tires for outdoor work or deep-cushion tires for even surfaces.

Result! Better work from man and truck! Less downtime...lower handling costs...fewer hidden expenses caused by fatigue! Capacities of 2,000 to 10,000 lbs. For all the facts on Yale Industrial Gas Trucks send for Booklet 5101D. Mail coupon today.

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**INDUSTRIAL LIFT TRUCKS AND HOISTS**

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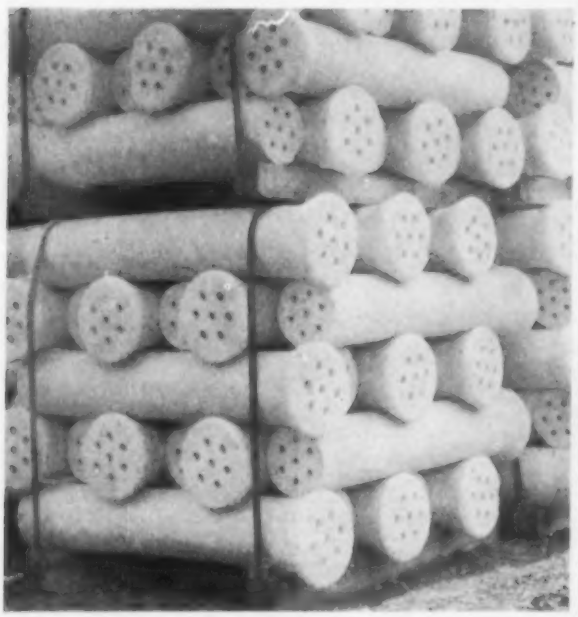
**Gasoline, Electric & LP-Gas Industrial Lift Trucks • Worksavers • Warehousers • Hand Trucks • Hand and Electric Hoists**

## Modernized and expanded plant produces a better quality product and a higher degree of product uniformity . . .



Palletized shipments for even unusual shapes, such as tuyere tubes, shown in this picture.

**REFRACTORIES FOR STEEL • TUYERE SHAPES • CUPOLA BLOCKS • PATENT CHECKERS • LADLE NOZZLE POCKET SPECIALIZED SHAPES • BRICK**

**CLIMAX FIRE BRICK COMPANY**

**CLIMAX, PA.**

**SERVING THE INDUSTRY WITH BESSEMER TUYERES AND FIRE BRICK SINCE 1840**

*Oldest and Largest Manufacturers of Pouring Refractories in the World*

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## HIRAM SWANK'S SONS

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**QUALITY PRODUCTS & DEPENDABLE SERVICE**

**OVER 35 YEARS REFRACTORY EXPERIENCE**

### *Robinson Newcomb Predicts*

# 1.05 Million Starts • Higher Priced Houses Construction At High Level • Brick To Do Well

WASHINGTON, D. C.—1957 construction in the United States will reach a new high level, according to a special forecast report made by Dr. Robinson Newcomb, market analyst for the Structural Clay Products Institute, national association of brick, structural tile and architectural terra cotta manufacturers.

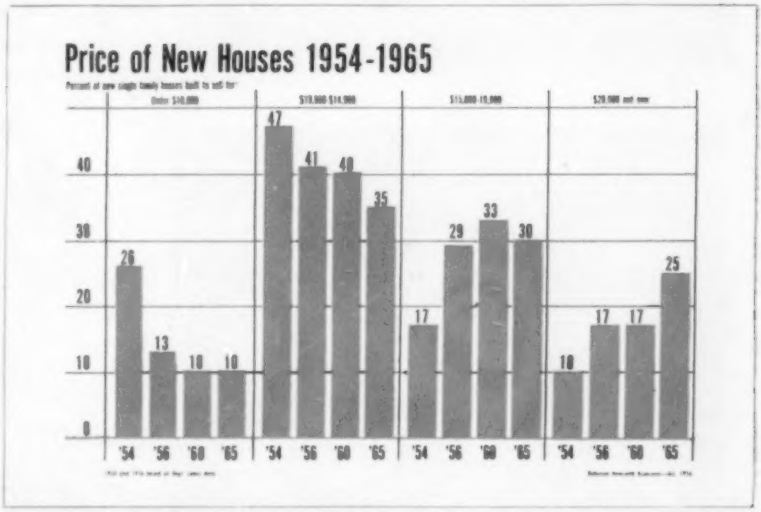
The physical volume of building will be about the same in 1957 as in 1956, but building activity will increase about 2 percent in current prices, Newcomb said.

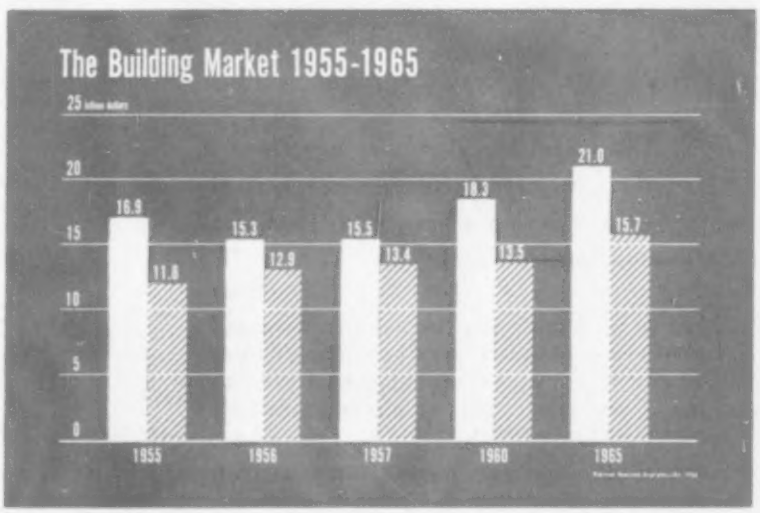
1957 housing starts will be 1 million, 50 thousand as compared with 1 million, 100 thousand in 1956, he predicted. Newcomb sees home building continuing its slower pace during the first part of 1957 with the possibility of a return to a more normal rate of 1 million, 200 thousand starts by the end of the year. He indicated that tightness of mortgage money has brought the slower rate of starts.

**Brick To Do Well**

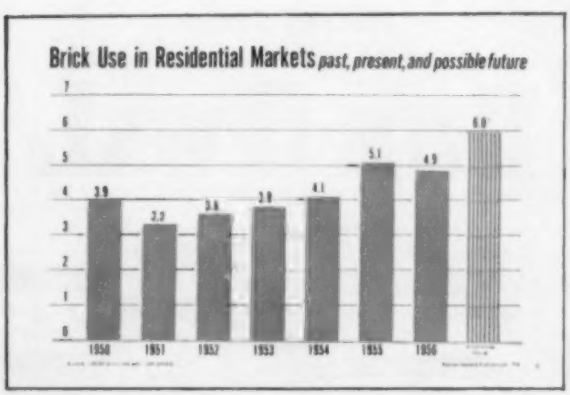
Although housing construction will be lower in 1957, the brick and tile industry can expect to do as well as in 1956 since a higher proportion of houses will be built to sell for more than $10,000. It is in this price range that brick is most widely used. The average selling price for single family houses may rise $300 to $500 compared with a rise of $900 in 1956.

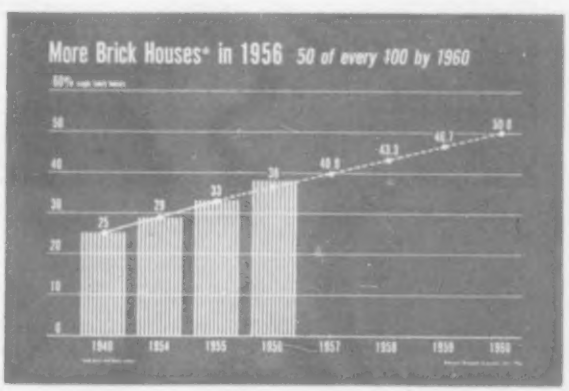
Looking at the nonresidential market, Newcomb sees an increase of 4.4 per cent in construction. This will be marked by rises in commercial, industrial, religious and school building. Hospital and institutional construction may drop as much as 15 percent with smaller expenditures for both private and publicly sponsored facilities. Newcomb explained that new drugs and medical and administrative techniques are permitting more intensive use of existing facilities.




SHADED BARS represent non-residential and solid bars show residential construction. Below right, dotted line indicates industry goal. Figures below left are in billions.



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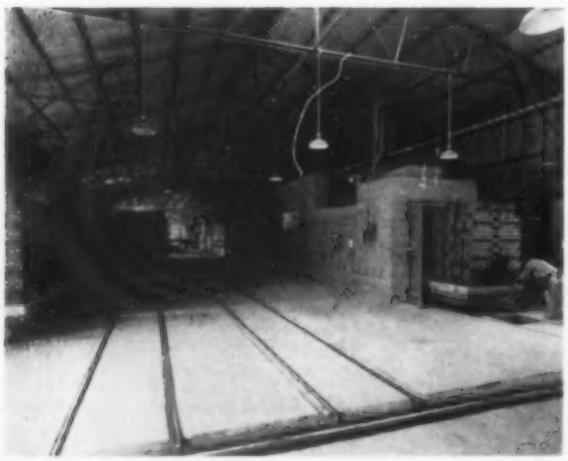

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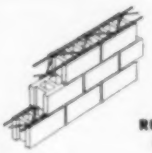

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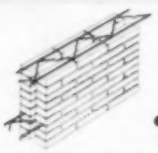
Designed specifically for masonry crack control, Dur-O-wal is specified by architects and builders everywhere. Supply this demand.



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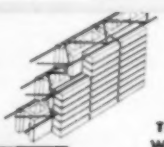
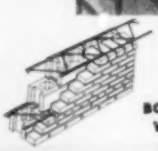
High tensile deformed steel side rods and butt-welded, trussed design cross rod combine to make Dur-O-wal an all-working steel reinforcing assembly.



TIED WALL



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## The Depletion Issue

# We're Winning The Big Fight

**A review of the history of the depletion issue to today by Ken Dunwody, a leader in the fight to save $10,000,000 for the clay products industry.**

**The cooperative action initiated by Ken Dunwody, President of Cherokee Brick & Tile Co. of Macon, Ga., by the publishers of Brick & Clay Record and by SCPI in financial and other aid is probably the biggest service in dollars and cents that has been done for the structural clay products industry.**

**It can eventually amount to $10,000,000 annually in tax reduction and refunds when the depletion issue is resolved, as it will be.**

**To both review and remind you of the work done and progress made, BCR is happy to publish the accompanying story of the depletion issue history, as reported by Dunwody at the SCPI Boca Raton meeting in November.**

I first became interested in depletion about 1948 and, as you know, on October 20, 1951, the President signed the depletion law granting allowance of 5% to brick and tile clay and 15% to refractory and fire clay. However, to date, five years later, we do not have a definite answer as to how the 5% and 15% are to be computed, or even as to how to tell when a clay is a fire clay.

Unfortunately, the manufacturers of brick and tile did not seem to grasp what this meant to our industry and did not become sufficiently interested early enough.

Senator George wrote me on November 23, 1952, with reference to the Treasury regulation that had been issued a short time before, as follows:

### Not Intent of Congress

"I shall be pleased to look into this matter when I return to Washington. I think the regulation tends to defeat the real intent of Congress."

I am glad to report that he has never deviated from this position and, if and when we are finally relieved of this exhaustive litigation, we can thank Walter George for the great contribution he made to us in our fight.

As all of you probably know, the Cherokee Brick and Tile Co., of which I am president, agreed to be the guinea pig in this matter and we certainly thought that this was to be the test case.

The Fifth District decision in favor of Cherokee was in 1954 and it was won in the Court of Appeals in January, 1955. Everybody was very happy over this for we thought we were doing well, but Tax Commissioner T. Coleman Andrews still contended in his original position and would not accept this case as a test case.

### Conference With Andrews

It was then thought that if we could get a conference with Andrews that some progress might be made. Therefore, at our suggestion, Senator George requested Andrews to come to his office for a discussion of the matter. Unfortunately, a few minutes before this conference was to start, Senator George was called to a very important meeting of the Foreign Relations Committee that he had to attend and did not have time to notify Andrews. The conference was held in George's office with Doug Whitlock, my business associate, Stetson Coleman, Andrews, and some of his staff.

Andrews evidently felt that, since Senator George was not present, he was not interested in the matter and no progress was made. The conference ended with Commissioner Andrews unquestionably convinced that the brick industry had no congressional backing at this stage, and, frankly, I think Doug Whitlock thought the same thing to a certain extent, for he called me up and laid the matter in the lap of the Georgia manufacturers.

### George Explains

Senator George wrote Andrews under date of June 4, 1955, explaining why he was unable to be present at that conference. I have Senator George's permission to quote his letter as follows:

"Dear Commissioner Andrews:

"It was very considerate of you to meet the representatives of the Cherokee Brick and Tile Co. and parties interested in the regulation for computing depletion allowance for federal income and excess profits tax purposes on brick clay.

"I had, of course, expected to be present at the conference and desired to do so, but an unforeseen situation arose in the Foreign Relations Committee which made it absolutely necessary for me to remain with the Committee during the hours of your conference in my office. I have learned through my secretary, John Carlton, that you with some of your assistants

Kenneth Dunwody

appeared and that you went into the matter at some length.

"You will recall that, at the first or primary meeting with the Joint Committee on Internal Revenue Taxation, I stated my position and my position is precisely the same as it was at that time, namely, the statute defining mining for purposes of computing depletion allowance for federal income and excess profits tax purposes does not exclude manufacturing processes so long as they are ordinary processes normally and necessarily used in obtaining commercially marketable mineral products.

"I personally recall the discussion in executive session between members of the Senate Finance Committee when this statute was under consideration. At the time it was not only understood but I pointed out what I knew and believed to be the facts about brick manufacture.

### Raw Clay Cheap

"I stated that often lands, containing brick clay deposits, could be bought at a cheap price but generally the recovery of the clay from the areas where it existed in Georgia, at least, was a costly operation. I specifically said to members of the Committee, who were present, that clay had no commercial marketable value, as a general rule, until after the clay was given the ordinary treatment processes.

"In the meeting with the Joint Committee on Internal Revenue Taxation, my recollection is that the position taken by the Commissioner was that clay would have some commercially marketable value before baking or cooking. But one instance, however, was pointed out and it was clearly an exception to the general rule.

"Brick clay at this time has no commercial value until it is baked or cooked. The Senate Finance Committee certainly understood this and clearly, **before the act**, giving depletion allowance to brick clay, was passed.

"There is nothing ambiguous about the language 'commercially, marketable, mineral product.' It is plain and certain. Today raw clay has no com-

**(Continued on following page)**

mercial value for brick and tile manufacture except in some isolated case where the clay is desired for other purposes. Clay cannot be reasonably regarded as an ore and it does not fall within the exceptions to the general rule, stated above, and recognized in the Cherokee Brick and Tile Co. case against the United States, U. S. District Court for the Middle District of Georgia.

**"The intent of Congress in this matter is too clear to admit of argument.**

"If it is the view of the Commissioner that the Congress went too far in stating the rule for computing depletion allowance for federal income and excess profits tax purposes, as interpreted by the courts, then I most respectfully suggest that the Commissioner or the Secretary of the Treasury should come before the proper committee of the Congress and urge an amendment to the law itself.

"The expense of burdensome litigation ought not to be thrown upon the taxpayers in this instance, taxpayers who as a general rule are unable to protect their rights through expensive litigation in the courts.

"Sincerely yours,
"Walter F. George."

### New Meeting

This letter got no results, so a group of Georgia manufacturers went to Washington again to see Senator George and through Senator George's efforts had a conference with Senator Byrd.

We asked Senator Byrd if he would call Andrews into his office for a discussion. This was in July, 1955, when Congress was getting ready to adjourn and at which time they did not want any tax matters to come up.

Senator Byrd said he would be very glad to call Andrews into his office but that Andrews would tell him exactly the same thing he told George and said that this was not the way to handle the matter.

### Amendment Suggested

The way he suggested was to get an amendment drawn that would affect none but the brick and tile manufacturers and he would put it on one of the small tax bills coming over from the House, and that he and George would have it passed at that session. We told him that that was fine; that we would act on his recommendation, and he made an appointment for us with Colin Stamm, who might be termed the "brains" of the tax writing staff in Washington. At the request of Byrd, we furnished him with a memorandum familiarizing him thoroughly with the subject.

Stamm drew up this amendment and we felt very happy over the situation and thought the matter would be cleared up the next day. Evidently, Senator Byrd found that this matter would possibly stir up too much debate and decided against following this procedure. Of course you know that Andrews has now been replaced by Harrington.

Needless to say, we were all terribly disappointed over the results of this trip to Washington and there was nothing for us to do but to come home and await further developments. In the meantime, SCPI and our attorneys, Sutherland, Asbill and Brennan, were very busy trying to prevent some uninformed brick manufacturers from getting into the tax courts and other cases, of course, were being readied for trial.

### Two More Cases

It was decided by our attorneys that we would set up two more cases and were led to believe that, were we successful in three different circuits, this opposition by the Treasury would be withdrawn.

Therefore, a case was set up in the District Court of Toledo, Ohio, the Sixth Circuit, the Haviland Clay Works against the United States, and in the Tenth Circuit, the District Court of Tulsa, Oklahoma, the case of the Sapulpa Brick and Tile Corp., and we won both of these cases in the circuit courts.

The Haviland Case was not appealed, apparently, because the government felt the record it had made was unsatisfactory. The Sapulpa case, decided in our favor in April, was taken to appeal and is set for argument for the Tenth Circuit in Denver on November 15.

### Another Conference

We returned to Washington the early part of this year and requested Senator George to call a conference with the new commissioner, Harrington, to further discuss the matter.

This was held July 10, 1956. Our understanding was there would be no outsiders present at this hearing but since George changed his mind about this and requested my presence, I requested the presence of the others with me; therefore, Richard Bickerstaff, Hatcher, Doug Whitlock and Stetson Coleman attended the conference also. This was a most interesting discussion and I made some notes during same which I think would interest you.

### Litigation Expensive

Senator George opened the meeting and stated that when this bill was under consideration by the committee, he called particular attention that it would cause a rather high depletion of the burnt product and that this was in executive session and the Committee concurred in his statement and so wrote the bill. That if anything was wrong, it was a legislative procedure and that the courts have construed it just as it was written and as it was intended.

He further stated that the brick and tile industry consists of small businesses which cannot continue this exhaustive litigation, and the court's decisions should make it clear that the statute means exactly what it says and that the Committee understood it at the time of writing the bill.

Senator Byrd concurred 100% in George's statement.

Treusch of the Internal Revenue Department stated that he respected the opinion so expressed and then proceeded to confuse the issue by a rather "long-winded" expression.

Senator George stated that there is no commercially marketable product until a burnt brick or tile is made. Treusch stated that the Treasury Department wanted the Supreme Court to decide.

Senator George answered that he was trying to make it clear that the Committee meant just what the courts had said and there was no misunderstanding on the part of the Committee.

Williams stated that the government stood to lose between 50 and 100 billion dollars if the statute was intended as is now being interpreted in the courts.

Senator George answered that "You are looking at end results and not interpretations. You should not look at

**Federal Court Points Out How Treasury Department Erred in Defining Terms of 5% Depletion Allowance**

Judgment rendered by U. S. Circuit Court Judge T. Hoyt Davis is bristed down for better understanding. Pertinent points of Treasury case and of Producers' case pointed up for clearer picture of far reaching decision.

With the multitude of brick and clay products manufacturers vitally interested in the recent court decision on the "5 percent depletion question," a broad and literal translation of the actions taken before and by the court is presented to give a better understanding of the court action and conclusions.

As is known, the U. S. Treasury Dept. had concluded from their interpretations of the applicable statutes that the "ordinary processes of mining" covered the areas from pit through preliminary crushing, weathering, but

*The victory by the industry is a vindication of all the hopes editorially set forth in Brick and Clay Record. The efforts by the industry and its organizations, culminated in the question before law being brought to a correct and vital conclusion. SCPI correctly labeled the action, calling it "a signal victory." However, it was more than just a victory over governmental error. It was symbolic of the strength that can be created by the combination of industry —its organizations, and its trade paper, working together.*

An example of BCR's editorial coverage of depletion

results but at the law as it is written. You are trying to define what Congress should have done—not what they did. That is the trouble with the Supreme Court at the present time and you are following in the same tracks that they have been using."

### Mistake by Congress

Senator Smathers entered the discussion here with the statement, "If Congress made a mistake, it is their responsibility, not yours, and we will correct it if it is as bad as you say."

And Senator George said, "If there is any ambiguity, it will be corrected; it has been done before. There are no doubts about what the Committee intended and, as I said before, I called it to the attention of the Committee at the time the law was written. Beyond any doubt, that fact was foreseen in Congress. I have not been critical of the Commission but the proper course is to take the matter up with Congress. You are not justified in continued litigation against a business like this."

Senator Smathers asked, "How far should you go in court?" (This was not satisfactorily answered. The obvious intent being to get a conflict so that they could take the matter to the Supreme Court.)

Commissioner Harrington then made his first statement. "It is our responsibility to interpret the law as best we can and it is up to our legal department to decide whether they should accept the decisions of the courts."

Senator Smathers asked, "Do you make the decisions or does your staff? Is it your duty to write the law?"

I then asked the Commissioner if he could give us some idea as to when he would reach a decision. He said he would study the matter immediately and hoped to give us an answer in a few days.

Another interesting thing to me was that the Commissioner stated that this was the first he had heard about this matter.

### Letter to Harrington

Senator George wrote Commissioner Harrington on July 18 as follows:

"Dear Commissioner Harrington:

"I wish to thank you for your kindness in coming up to discuss the brick depletion matter with us and for your phone call of yesterday informing me of your decision. I have conveyed to Senators Byrd and Smathers your statement that you feel for the present you must follow the advice of your legal advisers until you can obtain a decision in another federal court.

"We regret that you feel it necessary to await another Court of Appeals' decision before coming to follow what we believe to be the clear and unambiguous language of the statute.

"On the other hand, we feel that the industry will welcome your decision that you will abide by the Cherokee decision if it is followed by the Court of Appeals in another circuit and if there has been in the meantime no decision in conflict with it. I am informed that the Sapulpa case, which is the only case pending in the Court of Appeals, is the only case likely to be decided in the fall. If that decision follows the Cherokee decision, it would seem that the problem would be resolved in the near future.

"Sincerely yours,
"Walter F. George."

Commissioner Harrington replied to Senator George stating that, apparently, there had been a misunderstanding and that he thought it would be inappropriate for him, at that time, to state unequivocally that the government would abide by the Cherokee decision, if it is followed by the Court of

**(Continued on following page)**

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## Condensed History of Depletion Issue

### 1948

**Jan.**—Kenneth Dunwody suggests a study of percentage depletion.

**Mar. 19**—A report on percentage depletion prepared by Waldo Sowell and submitted to C. N. Heath, Exec. Sec'ty., Southern Brick & Tile Assoc.

**Mar. 25**—Letter from Chad Heath to J. J. Svec of BRICK & CLAY RECORD suggesting that a survey of manufacturers be made to get their views on presenting a bill to Congress.

**Mar. 27**—F. L. Steinhoff, publisher, and BCR executive board decide to take action in pursuing the depletion problem.

**Apr. 6**—Letter to Chad Heath from BCR accepting the challenge.

**May**—Meeting of BCR representatives with Southern B&T Assoc.

**June**—Survey letter sent to fifteen manufacturers.

**July**—Replies from many of above.

**Aug. 4**—A. L. Hodge added t olist.

**Sept.**—Presented problem to industry in general.

**Oct. 28**—Board of Directors of SCPI defer action.

### 1949

**Jan. 29**—Committee met in Augusta, Ga., to consider BCR replies and comments. A tax lawyer in Washington, D. C., was suggested. Thomas Sommerville III agrees to present matter to Washington atty.

**Mar. 6**—Suggestion made to have all clay groups join forces. (Refractories group was already active.)

**Dec. 12**—First report on depletion as might be applied to clay from SB&TA. 15% figure on mining established.

### 1950

**Apr. 4**—BCR turns files over to SB&TA for joint action.

**May 26**—SCPI executive committee takes up matter but are disappointed in 5% rate.

**June 13**—Ways & Means Committee agrees to include 5% depletion on clay.

**June 29**—Bill passes house.

**July**—15% rate suggested.

**Oct. 20**—Revenue Act of 1951 approves 5% depletion for brick & tile effective Jan. 1, 1951.

### 1951

**Nov.**—SCPI appoints committee to study depletion.

**Nov.**—Committee recommends depletion allowance on burned clay product.

### 1952

**Oct. 29**—Treasury Dept. regulation does not allow forming or burning costs.

### 1953

**Feb. 5**—Law firm of Sutherland, Asbill and Brennan retained to consult with the Treasury on rewriting the depletion regulations.

**May**—All indications point to a test case in the District Court.

**July 16**—Firm of Sutherland, Asbill and Brennan retained to handle test case by SCPI.

**July 21**—Treasury regulation, adverse to the Clay Industry, approved.

**July 24**—Notice that a suit against the Internal Revenue Department will be filed in the District Court of one of the Southeastern States.

**Sept. 3**—Suit filed in the District Court at Macon, Georgia on behalf of Cherokee Brick & Tile Company.

### 1954

**Feb. 18**—Press release from Chairman Daniel A. Reed indicates that Revenue Act of 1951 as pertains to depletion on brick and tile clays would be changed to conform to Treasury Regulations adopted July 21, 1953.

**Feb. 22**—Depletion Committee and R. H. Bickerstaff met in Washington with members of the House Ways and Means Committee to protest proposal contained in press release of February 18.

**Feb. 24**—Chairman Reed issues a press release stating the Committee had reconsidered a previous decision (Feb. 18) it had made on depletion of brick and tile clays.

**May**—Hearing on Depletion Case in the District Court at Macon, Georgia.

**June 4**—Judge Davis rules in favor of Cherokee Brick & Tile Company.

**Aug. 2**—Treasury Department appeals the ruling of the District Court.

**Oct. 18**—Hearings held in the Circuit Court of Appeals, Atlanta, Georgia.

## DEPLETION Continued

Appeals in another circuit and if there had been in the meantime no decision in conflict with it.

### Harrington Reply

From this, it was evident that we were still faced with further litigation and, as you have been informed, the government has obtained a conflict at least in a district court in the Dragon Cement case. We believe that the reasoning in this case is utterly erroneous. The whole decision is based on the assumption that the word mineral is a noun in the statute and this is just plain wrong as a matter of elementary grammar.

The government has been relying heavily on this Dragon Cement case in the brick cases argued since the decision in the Dragon case.

In one of these cases, Estate of Stephenson V. United States, decided by the District Court for the Northern District of Alabama, the judge took the opportunity to answer the Dragon case. He held for the taxpayer and said that the whole issue was a "short horse soon curried." He went on to state:

> "The artful exercise in syntax which led Judge Aldrich to disagree with Cherokee's construction of the phrase, 'commercially marketable mineral product or products', is said to shed light where before there was darkness. It is difficult to believe that so distinguished a grammarian as Judge Holmes (who wrote the Cherokee opinion) was grossly misled in declaring 'the statutory language is clear and unambiguous'."

### Decision Hoped For

There now seems to be ground to hope that this whole issue will be decided in the near future. We hope to obtain a favorable decision in the Sapulpa case, and if we do, we believe this decision by the Court of Appeals should influence the decision in the Dragon Cement case on appeal. If we are successful in the Sapulpa case, and if the Dragon case is reversed on appeal, then we believe that there is an excellent chance that the Internal Revenue will change its position.

If we lose the Sapulpa case or if the Dragon case is affirmed on appeal, then the whole issue will, no doubt, go to the Supreme Court and that court will reach a decision on the matter which will settle it for the entire country.

### Another Case

I should also mention another case which is pending in Arizona. This case involves the Wallapai Brick & Clay Products Co. and is set for argument before the District Court on November 19. If for any reason the decisions in the Sapulpa and Dragon cases on appeal do not decide the issue, then this case will go to the Court of Appeals for the Ninth Circuit.

Another aspect of the depletion controversy involves fire clay. One problem here concerns when a clay is a "refractory and fire clay" so as to receive a 15% rather than a 5% allowance. The Internal Revenue Dept. originally took the position that any clay with a pyrometric cone equivalent of 15 or more is fire clay and is entitled to a depletion allowance of 15%.

### Fire Clay Definition

Early this year, the service changed this position and said that a clay is entitled to 15% only when it is used for a "recognized refractory purpose," but did give an example that clay which is used in making sewer pipe to allow the body of clay to keep its shape under the high temperatures needed for vitrification is used for a "recognized refractory purpose."

After a conference with SCPI's Fire Clay Depletion Committee last summer, the service sent out instructions to certain field offices which broadened the meaning of "recognized refractory purpose" so that it includes any use where fire clay must be used to meet certain specifications which could not be met by other clay.

This latter position has not been published in ruling form and we understand that the Internal Revenue Service still has the matter under consideration.

Two cases in court have involved fire clay, **Elgin Butler Brick Co. V. United States** and **Acme Brick Co. V. United States.** In both cases, the government admitted, but only for the purposes of these particular law suits and for the particular years involved, that the fire clay used by the companies is entitled to 15%.

The question arises as to what significance these decisions have in other parts of the country where there are larger amounts of fire clay sold. Whether these fire clay cases will stand up on appeal and just how broadly they will be interpreted remains to be seen.

### SCPI Position

In respect to cases of other brick companies, SCPI's position is still that companies **Outside the Fifth Circuit** should continue to delay litigation until we see what happens in the Sapulpa and Dragon Cement cases. We believe we have the best chance of getting the government to give up on the brick and tile clay issue if these cases are won in the courts of appeals, if there **are not other cases pending.**

We believe that other fire clay cases should be held up pending the appeals in the Elgin-Butler and Acme cases. SCPI will continue to keep you informed on developments in all of these cases.

In conclusion, I want to bring out the fact that if we are finally successful in this matter, the industry owes a tremendous vote of thanks to our Association, the Structural Clay Products Institute, and to Doug Whitlock, in particular; also, to the efforts of Fred Steinhoff and Jerry Svec of BRICK & CLAY RECORD, and to our attorneys, Sutherland, Asbill and Brennan, who, so far, are batting 1000% in all cases which they have handled.

I also want to urge on every brick manufacturer here to make it a point to become acquainted with his Congressmen and senators, for it is through their aid that we have survived this fight so far.

Had it not been for the aid from Congressman Sidney Camp of Georgia, who has since passed away, we would have been written out of the picture several years ago and we only prevented this from happening by about thirty minutes. We were fortunate in getting Congressman Camp at lunchtime, informed him of what was going on and he stopped it.

### Industrial Men Not Politicians

The record is clear — industry is not politically effective; the demagogs and liberals are! One might say that if our industrial leaders are so rich, why ain't they smart?

I quote from a publication called Human Events: "Because of its very nature, industry is composed largely of engineers, chemists and technicians, who are concerned about the production of a product.

"Most of them are very uninformed politically. It is suggested that all junior executives be required to study government, both at the grass roots and in the nation's capitol. We must realize that industrial public relations and politics consist of establishing in the minds of the people a favorable climate of opinion before the issue arises, not afterwards.

### Must Take Action

"We must stop operating on the theory that no news is good news and stop waiting for bad news before we act. This will not work in politics. By the time we hear the bad news, the battle is lost.

"If we are to be effective, we must understand that in our government most of the work is done by the second echelon workers. We must therefore, see that our sort of people get into those jobs and we must realize that, imperfect as it is, the most important science in the world is the science of government."

---

**Since this report was given, SCPI has informed its members of a favorable decision by the Circuit Court in the Sapulpa Case, Dec. 20. The decision affirms that given by a lower court.**

*All semi-automatic welding was performed during a shut-down without dismantling the muller.*

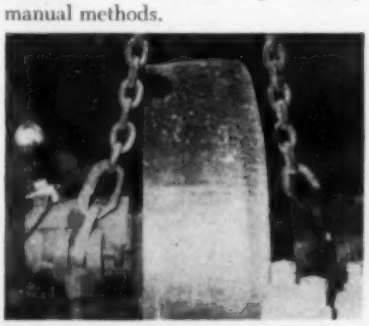
# Hard-Facing Muller Tires SEMI-AUTOMATICALLY

The development of Stoody wires for semi-automatic welding *without the use of flux* offers distinct advantages over manual application—3 times the speed of the old method... reduced welding costs...less down-time for maintenance, with the added service life you get from all Stoody hard-facing alloys. The use of this new process is illustrated by the experience of a large Western brick plant.

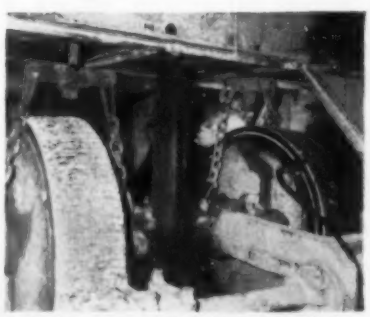
A badly worn 46" muller tire measuring 10" across the face was reclaimed by rebuilding with Stoody 104, followed by a hard-metal overlay of Stoody 100. The tire was worn as much as ⅝" in cupped areas and required 3 to 4 passes of Stoody 104 to restore size and a square face.

Because of porosity in the casting, work was slowed considerably, six hours being spent to rebuild a 24" rim section. The sound portions, however, were completed at a rate of 17" to 18" of rim per hour. Although pre-heating or skip welding is usually recommended, welding in this case was continuous, transverse beads being applied consecutively across the face. As heat built up in the tire, deposit rates were safely advanced.

Despite delays due to porosity, the muller tire was completely rebuilt and hard-faced with the semi-automatic equipment in just 24 hours, considerably faster than would be possible by manual methods.



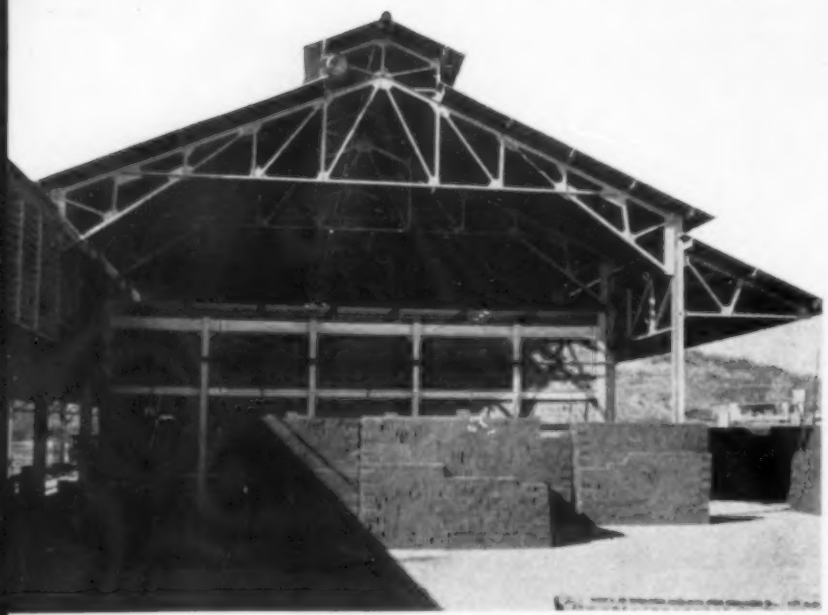
*Degree of wear is evident on this rim. Low spots were filled and rim squared up with Stoody 104, a semi-automatic wire for buildups.*



*A final overlay of Stoody 100 welded in transverse beads provided a hard, wear-resistant topping to the rim.*

For detailed application information on all your wearing equipment consult the Stoody Guidebook. Your Stoody dealer has a supply (check the "Yellow Pages" of your phone book) or write direct.

**STOODY COMPANY**
11937 East Slauson Avenue
Whittier, California



**An extensive modernization program and a new idea in firing brings top results to the home of Acme Colonial Brick.**

# Bennett Plant Setting Record for Output, Economy

Down at Bennett, Tex., a town some 50 miles west of Fort Worth, the Acme Brick Co. plant there is performing new ideals in efficiency in their operations, by the use of plant engineering and adapting of newer principles of winning, forming and firing.

The Bennett-Acme plant, in a physical sense, is a new operation, since a complete rebuilding of its facilities was just completed last year. A program, achieved in a five year period, included installation of complete new grinding facilities, new plant housings, and installation of rectangular suspended arch kilns with the resultant changeover in burning methods.

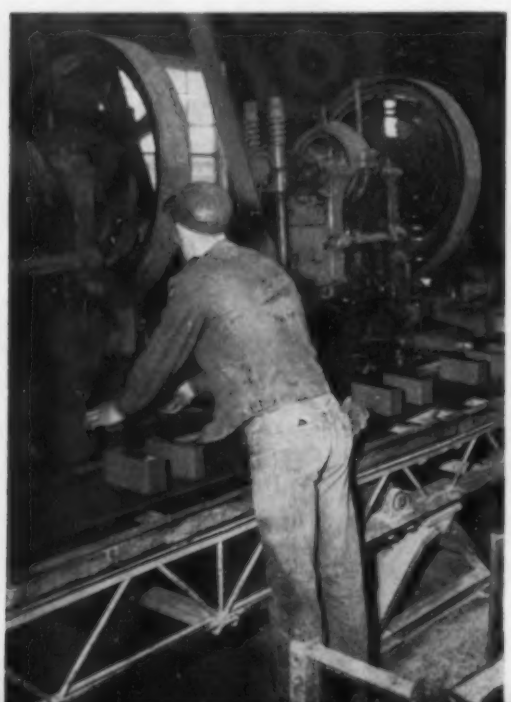
Perhaps the best picture in print of the operation is achieved by going through the complete processing from the pit and finishing off with details on their new splendid firing system.

### Acme Plant Operation

The Bennett Works uses an Eagle shale planer in their clay winning operation. While this method is universally understood, some of the plant idea-engineering that went into this section of the operation bears reporting. At the Bennett pit, trailer bins have been added to the shale planers. The feed conveyor from the planer to the bin has been suspended so that with a minimum of labor the conveyor can be lifted from the bin.

The operators have found by doing this the bin may be cut loose from the planer and both bin and planer moved about in the pit more easily. Also, they find that by using a one-side tie, the path of the planer can be influenced by the drag of the bin. This too, under control, has aided the pit operation.

Another system that has increased efficiency was the enlargement of this bin, enabling them to have more storage capacity and thus more of a cushion in the operation. Clays won are fed from the bin and fed into trucks (two are needed to fill plant require-



**IN THE REPRESS operation, Acme coats the clay column with a cutdown mixture of diesel oil which improves the forming**

ments) for transporting the winnings to the preliminary grinding section. A 10-ton Plymouth locomotive and train are also used in transporting clay to the plant.

For secondary clays, the plant has a ¾ Insley shovel working the soft mud deposit for the Colonial brick line at the plant.

At the plant an extensive conveyor set-up has been installed as part of the plant modernization. It might be well to note that the Acme Brick Co. has used the conveyor system quite extensively throughout their operations. A report on their systems and an analysis of why Acme used conveyors was given by company engineer, Ray Bassett in the October-November, 1955, issues.

Bassett outlined Acme's stand on conveyor systems quite adequately when he asserted (page 66, Nov. 1955 BRICK & CLAY RECORD) ". . . the cost of conveyors seems almost prohibitive but when you consider the work they do with almost no maintenance costs, and what it would cost to do the same work with other equipment, they are cheap."

The Bennett plant conveyor and preliminary grinding sections are all under roof with steel prefabricated structures housing most of the new sections.

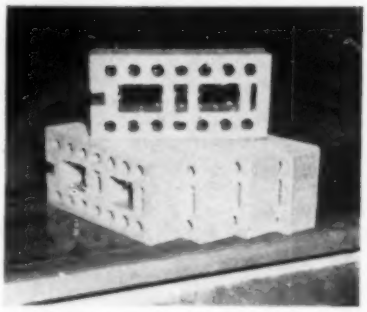
Clay, dumped into a conveyor feeding bin by the pit-to-plant trucks, is elevated and fed into a frost 9 foot dry pan. Barium carbonate is added at this point and blended in during the pan operation. Crushed clays are then transported via conveyor to surge bins, equipped with disc feeders, from which the material is processed to and through the twin 4 x 8 Link-Belt electrically vibrated and heated screens.

The screened material is processed on to the dry pan storage bins and tailings are rerouted for processing in the usual manner. Forming is accomplished by means of a J. C. Steele No. 50 combination, installed in 1950 along with a Steele cutter. Some of the product of this stiff mud line is hacked directly onto drier cars for drying. Other ware is run on down the offbearing belt where it is processed through Bonnot represses for the manufacture of Acme's famous "Round Edge". In this repress operation the column of clay is coated with a cut down mixture of diesel oil which, according to the plant superintendent, materially improves the forming of the round edge ware giving them a consistently smooth rounded finish.

### Acme-Bennett's Soft Mud Operation

The Bennett plant also manufactures a complete line of Colonials including their famous "frosted brick". For this operation, the clay is won by an Insley shovel as reported earlier, taken to the plant in the standard manner and, after being processed through a 10 x 16 Denver crusher, is elevated to a raw clay bin. This bin, equipped with a disc feeder system, feeds the nine foot Bonnot dry pan. Approximately 50 percent of the ware is mixed with barium (as in the stiff mud section) at the dry pan. The remaining 50 percent has no barium added and this mix is used in the manufacture of the frosted brick. The ground material is processed through piano wire screens, and then stored in a disc feeder which supplies the Posey Autobrick machine used in the forming of the soft mud ware.

Brick from the machine are formed and placed on pallets in the regular manner then hacked into the kiln for firing.



HOLLOW BRICK as made at Acme.

Besides the stiff mud standard brick section and the soft mud manufacturing section the Bennett plant also has a third line where ware is formed in the same manner as on line one, with the exception that a Bonnot combination brick machine and pugmill is in this line. This Bonnot is equipped with de-airing device and is, incidentally, one of the first—if not the first—installed in the Southwest.

### Acme's Firing Facilities

The kilns and firing systems at the Bennett plant have been completely replaced in the last five years. As of now the operation has the following burning facilities: twelve 30' beehives, four 20' x 33' inside dimension suspended arch rectangulars and all are fired by gas. Both company-manufactured burners and Maxon premix burners are used for firing at the plant, with the Maxons installed on the new rectangulars.

### Acme-Bennett's Drying Facilities

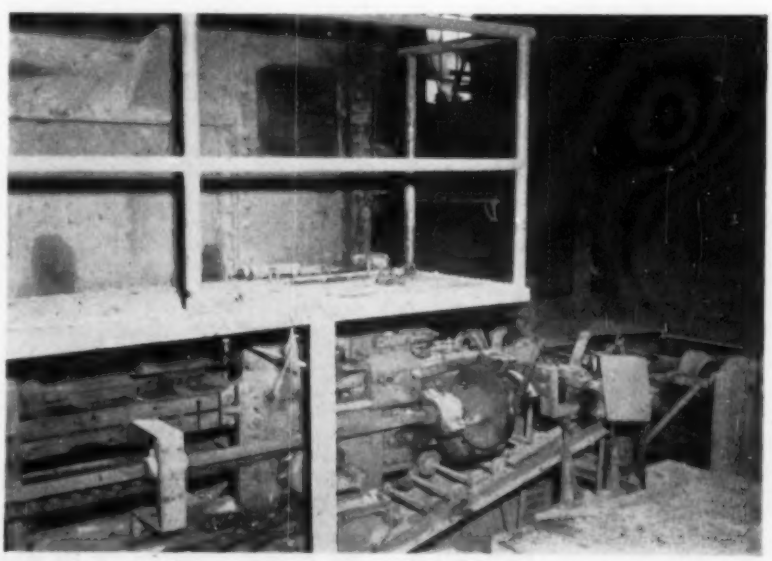
Output of the plant forming sections is processed through any one of the 33 driers in use at the plant, with each drier some 120 feet long. Equipped with Rogers fans, both waste and auxiliary gas furnace heat is used in this phase of the operation. Ware from the line is kept in the drier sections for an approximate 72 hour period then drawn and hauled, stacked on their Chase drier cars, via a company designed transfer car, to the kiln where loading is being undertaken.

The firing system and programming for the beehives calls for each burn of the ware taken to a top of 1890 deg. F., in the burning circle. After cooling the ware is hacked onto carts and wheeled into the yard for stacking.

### Addendum About Acme-Bennett

The plant produces some 125,000 brick equivalents each day. This includes not only the standard stiff and soft mud brick but hollow brick as well as specialty shapes which include clay parts for filter systems. Some packaging and strapping is done at this plant with the Acme Steel Co.'s 500-pack being the most frequently used — and this for the export market. Shipments are handled both by the Texas and Pacific Railway as well as by contract haulers.

The Acme-Bennett Works is one of 18 plants owned by the Acme Brick Co. with headquarters at Fort Worth, Tex. President of the company is J. E. Fender and Joe Hobson is general plant manager in charge of production.



POSEY AUTOBRICK machine is used in the forming of the soft mud ware.

SINTER CAKE is discharged as shown in picture at right and at right edge of above photo. Clamshell moves cake to storage pile where it cools for 24 hours. Water spray from hose aids in clinker cooling process.

# Stiles Turns Overburden Into Profit

**Connecticut brick—lightweight aggregate operation uses overburden as raw material; requires only 7 men for daily production of 200 yards. Plans call for sintering expansion, adding of crushing and screening activities.**

To counteract the dwindling supply of cinders in its area and to insure a reliable supply of high quality aggregate, the I. L. Stiles & Son Brick Co., of North Haven, Conn., recently constructed a modern plant to produce lightweight aggregate. Since the company was faced with the problem of removing from 10 to 20 feet of overburden from its clay deposit for brick manufacture, it was thought that perhaps the overburden would be ideal for sintering purposes. Reason for this thinking was that the overburden consisted of clay and loam with a good amount of organic material. If sinterable, the raw material could be gotten for practically nothing, since it had to be removed anyhow for the brick manufacturing operations.

Located about four miles north of New Haven, Conn., the plant utilizes a Dwight-Lloyd sintering machine capable of producing 20 cu. yds. of aggregate per hour.

The product is a tough, semi-harsh material weighing, on the average, about 1500 lbs. per cu. yd. of plus 2½-inch material. Since 50% of the sintering plant's production is used by the company's block plant, which has its own crushing apparatus, initial crushing on the plant site is down to this size only. However, with the future in mind, and considering the possibilities of the uses of lightweight aggregate, the company has a complete crushing and screening plant on the drawing boards for immediate future installation when needed.

Clay for the sintering operation and brick plant is won in similar fashion. Since the clay lies at a level below the bed of the river running by the clay deposit, it is necessary to pump water from the clay pit continuously to provide a firm base for the shovels and trucks to operate on. A 1-yd. power shovel excavates the overburden for the sintering plant and loads the material onto tandem-axle dump trucks for delivery to the plant stockpile where it is allowed to dry before being placed in the manufacturing process.

Another 1-yd. shovel works on the lower level removing the clay for use in the brick yard.

### Raw Material Preparation

As the clay is allowed to dry on one stockpile, a 1-yd. power shovel removes clay from a second stockpile for use in the sintering plant. The clay is hauled to a hopper by a truck where it is dumped. A screw-type feeder deposits an even flow of clay on a belt-conveyor which carries the material into a Mud Hog disintegrator. Capacity of both the feeder and distintegrator is about 50 cu. yds. of clay per hour.

A 42-inch belt conveyor, moving at a rapid speed to prevent agglomeration of the fine-particled clay, transports the material into a power shredder which performs the secondary grinding. From the shredder, another belt conveyor transfers the material into a retarding hopper with a capacity of two cubic yards. A 42-inch measuring belt feeds the required amount of clay onto a main belt conveyor leading to the pelletizer.

### Coke Breeze Used

Coke breeze is used as a solid fuel and is received by truck in sizes below ⅜-inch. Further grinding of the coke breeze is necessary, and a new crusher will be installed to reduce it to —⅛-inch.

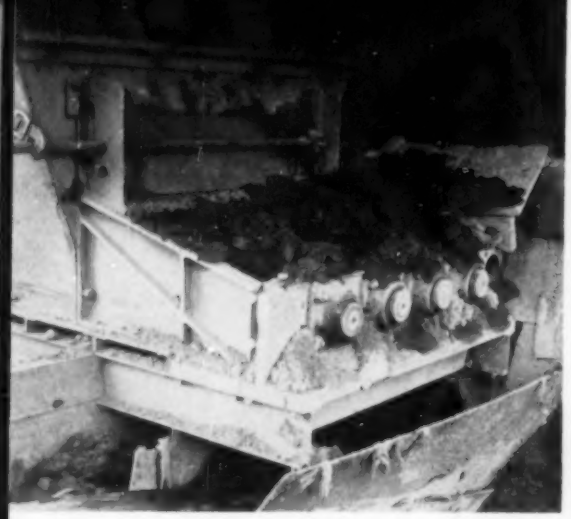
As soon as the coke is received, it is dumped into a hopper where a conveyor belt picks up the material and transfers it into a storage bin. A measuring belt from the coke bin then deposits the coke in proper proportion upon the same conveyor belt that the clay is deposited on.

Return fines from the sintering process are collected at the discharge end of the sintering machine on two natural-frequency conveyors. They are transferred to a 14-inch apron conveyor and returned to the Mud Hog disintegrator where they go through the same grinding preparation simultaneously with the clay.

### Mixing

The final stage in the preparation of the sinter charge is the mixing of the clay, coke breeze, and return fines. This is accomplished by the use of a 5-ft. by 10-ft. drum-mixer which also serves as the pelletizing unit for the charge. The drum mixer is simply a large metal cylinder set at a slight angle to horizontal.

The charge in the form of coke breeze, clay and fines, is introduced into the higher end, while at the lower end, spherical, lightly compacted pellets of the mixture are discharged. Water is introduced to the turning cylinder by means of a perforated pipe and the normal balling tendency of the



CLAY FEEDER shown at top receives clay from pit, sends it on to Mud Hog disintegrator. Part of the elaborate conveyor system in use at Stiles operation is shown in right photo. All Stiles production is sent by truck.

earthy materials is depended upon to form the pellets.

The discharge from the drum mixer falls through a swinging spout which deposits the material on the sintering grates in a uniform depth of about 10 inches.

### Sintering Process

The sintering machine itself is a product of the Dwight-Lloyd company. The loaded grate area moves into the firing area where the charge is initially ignited by four oil burners. Using No. 5 oil, these burners build up a heat that averages about 3000°F. The loaded grate moves through the fire area down the hearth at a continual rate of flow, about four feet per minute. The continual flow is controlled by the use of a variable speed drive which has a remote control.

Under the hearth are a series of four wind boxes which are connected by separate valves and a manifold to the intake side of the blower fan. The Dwight-Lloyd fan (78 in. x 20 in.) pulls 30,000 CFM and is driven by a 350-hp motor operating on a 4400-volt current.

Length of the burning area of the grate at North Haven is 44 feet. Plans are also on the drawing board to extend the length of the sintering machine to 88 feet. This will enable the company to run the machine twice as fast, thereby doubling production of the aggregate plant.

### Crushing Operation

Completely fired, the sinter cake is discharged out of the building into a pit. A 1-yd. clamshell mounted on a motor crane moves the clinker onto a storage pile for semi-finished material where it is allowed to remain for 24 hours to cool in preparation for the grinding process. To facilitate the cooling, cold water is sprayed on the hot aggregate clinker.

After the material has been allowed to cool for 24 hours, the clamshell deposits the aggregate into a hopper at the crushing plant. A set of 18-in. by 24-in. knife rolls chops the material into a size that can be handled by the next piece of grinding apparatus, a set of 30-in. by 18-in. smooth rolls. The crushed aggregate then is deposited upon a 30-in. pan conveyor which leads directly to the loading station. As 100 per cent of all the production is sent out by truck, this conveyor is used for loading the trucks.

At present, the aggregate company is operating on a 10-hour day. The plant produces about 200 yards of aggregate per day with an overall personnel force of only seven men.

Plans for the future of the company include lengthening of the sintering machine to twice its present length and the installation of a more efficient crushing and screening plant which will enable the company to retail the aggregate in its finished size.

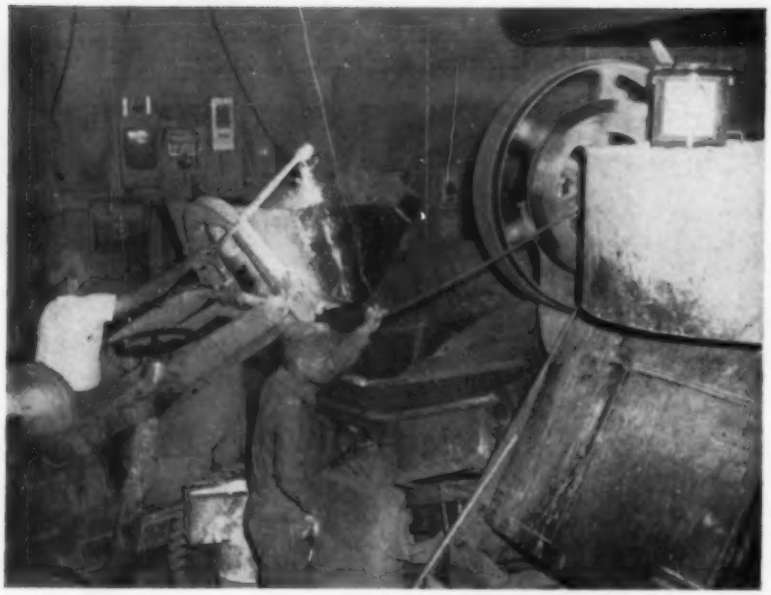
Officers of the company include D. B. Andrews, president; C. F. Andrews, vice-president; and C. H. Carmichael, general manager.

**Lightweight Aggregate**

***Special***

## Equipment Used At I. L. Stiles & Son

| | |
|---|---|
| **Clay Mining Shovels** | **Two 1-yd P&H's** |
| **Clay Mining Dragline** | **One 2-yd Lorraine** |
| **Stockpile shovel** | **One 1-yd P & H** |
| **Aggregate handling shovel** | **One 1-yd. Unit** |
| **Clay Hauling trucks** | **Diamond-T, White** |
| **Bulldozer** | **Caterpillar HD-9** |
| **Stockpile truck** | **FWD (Four-Wheel-Drive)** |
| **Clay feeder** | **J. C. Steele** |
| **Distintegrator** | **Jeffrey Mud Hog** |
| **Power Shredder** | **Kemp Mfg. Co., Erie, Pa.** |
| **Pelletizer** | **Dwight-Lloyd** |
| **Sintering Machine** | **Dwight-Lloyd** |
| **Apron conveyor** | **Jeffrey** |
| **Vibrating conveyors** | **2 Carrier Conveyor Corp.** |
| **Pan conveyor** | **Jeffrey** |
| **Smooth rolls** | **Chambers Bros.** |
| **Sintering Fan** | **Dwight-Lloyd** |
| **350 hp motor** | **Fairbanks-Morse** |
| **Ignition hood** | **M. H. Detrick Co., Chicago** |
| **Oil Burners** | **North American** |
| **Triple-deck screens** | **Hewitt-Robbins** |



BLENDING AT THE DRY PAN may also be achieved by the addition of the necessary additive before the mixture is put in the pan.

# Blending Of Clays As Related To Product Quality Control

**Different methods of blending clays and various control methods can help you to get the characteristics you want in your ware and can improve firing conditions in your plant operations**

by
Kenneth Dyer

BLENDING AT THE CLAY PIT can be done by uniform cutting of the bank.

The purpose of blending clays in a ceramic body is to obtain definite characteristics such as color, texture, tensile strength, definite maturing range, and to improve firing conditions such as shortening the oxidation range.

When definite body characteristics are determined, then blending can be done in any one of the following manufacturing stages, depending upon which would be of greatest advantage to the individual company.

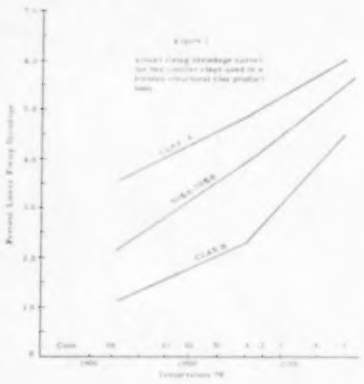
### Blending at the pit or mine

At this location blending of one or more clays can be done by uniform cutting of the bank with a shovel or dragline or shale planer, or by mixing with a shovel the clay that has already been dug or cut from the face of the bank. This method of mixing can be used providing the clay occurs in nature in the correct proportions and mixing is the chief problem. If the clays occur in such proportion that they must be separately mined and recombined, then the best way to get uniform mixture is by spreading the clays in layers of predetermined thicknesses over a wide area which can later be cut by a power shovel and loaded into trucks. This method is expensive because it requires two handlings of the clay but it has been proven a very satisfactory means of mixing more than two clays which occur in the pit in proportions where they cannot be used as they occur.

### Blending at the dry pan

Where it is desired to get an intimate mixture of one or more clays and where it is not possible to blend at the pit, it is desirable to blend at the dry pan from storage bins with variable speed feeders and a single gathering belt. This method assures not

only accurate proportioning but an intimate mixture because of grinding the clays together in the pan at a constant rate. Control of the feed with consequent control of the mix can



be very positive. As a simple control measure the amount of clay fed in a given time from a certain feeder setting can be weighed and either the speed of the feeder or the opening from the feeder calibrated.

### Blending from screens

Previously described methods of blending yield good mixtures but no positive control over grain size except through a single screen. Sometimes it is necessary to have a very dense body and a number of investigations on grain size packing have proven that the removal of intermediate grain size and recombination of the fines and coarse results in a very dense body. It may be desirable to control grain size, in which case it is necessary to grind clays separately and screen them separately for later recombination. Another means of controlling grain size is the use of multiple-deck screens where grain sizes may be separated from a single clay or a mixture of clays, preferably ground through one dry pan, and then these clays reblended as they travel from the fines chute to the bin. This latter method permits accurate grain size separation but not too good reblending.

### Blending at the pug mill

It is sometimes more desirable to blend one or more clays for color or grain size directly from bins to the pug mill. Proportioning feeders can accurately control the amount of clay from each bin, but in order to obtain intimate mixtures before the clays reach the pug mill it is necessary to have a mixing device such as a rotating tube which conveys and mixes the clay very rapidly.

### Control measures of blending

Assuming that the above described methods of mixing are mechanically possible for a given blend it is still desirable to have control measures which will further check on the efficiency of the mixing or blending operation. Such control measures can be very simple and should be worked out for individual bodies.

### Variable Shrinkage

If two clays of variable shrinkage are blended, then periodic determination of the drying and firing shrinkage can be made and compared to a set of standards. Figure 1 shows, for instance, shrinkage curves from cone 04 to cone 5 for two different clays which are used in a blend and a mixture of 50% of each. Other blends of the two clays could be recorded, and the data obtained from it would be possible to check the effectiveness of blending for practically any firing temperature in the firing range used. The difference of shrinkage in these particular clays are of such significance as to permit the use of firing shrinkage as a control measure.

### Control by weight loss

If two clays of widely varying carbon content are blended then periodic determination of weight loss can be used as a control measure. Figure 2 shows, for instance, the fired weight loss for clays A and B and mixtures of the two. Here again the difference between these two clays are of such significance that the weight loss in firing can be used as a check on the efficiency of blending.

### Control by absorption tests

If two clays of widely varying maturing temperatures are used, then frequent absorption tests can be used as a measure of control, providing the absorption of the several clays are known for a given firing range. It is possible to use such a measure for as many as three clays in one body as a check on the efficiency of blending.

### Control by screen analyses

If clays of widely varying grain size results from the grinding process, then periodic screen analysis offers an excellent means of control.

This outline is offered as a means to further illustrate that control measures are possible for practically any manufacturing process in the structural clay products field provided the fundamental characteristics of the individual clays are determined, and provided the properties of the individual clays are frequently checked in the laboratory. Control measures in blending do not require a great deal of time nor do they require specially skilled employees. The greatest contributing factor towards good blending is constant attention to the known variables of the material being used.

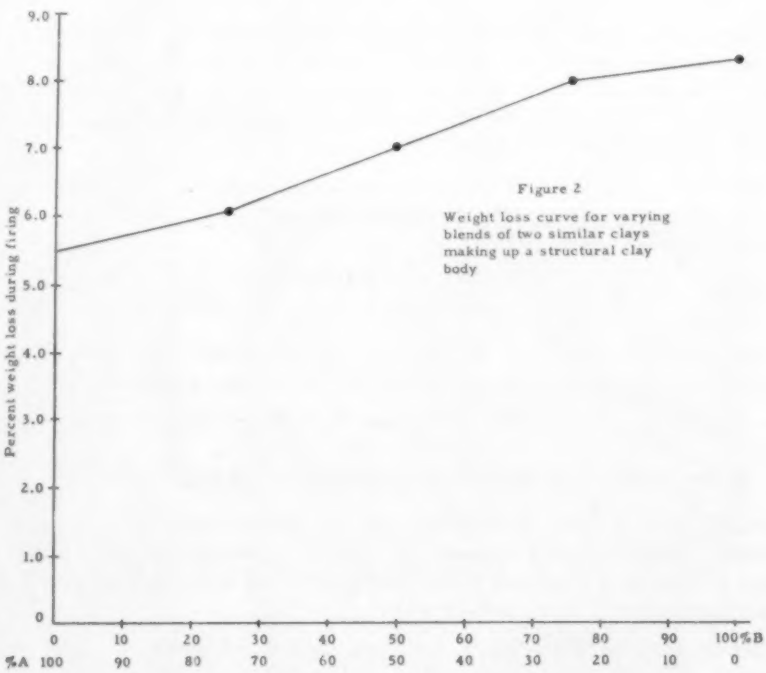



Figure 2

Weight loss curve for varying blends of two similar clays making up a structural clay body

# 37 YEARS PROVE

## the brick and clay product industry is one of

# "OUR BEST CUSTOMERS"

. . . says F. W. Swanson, Jr., President of Globe Machinery and Supply Co., Des Moines, Iowa.

Mr. Swanson further states "Brick and clay product plants are easier to do business with because you can get to the top man who does the buying in a hurry. They generally know what they want, and once they are convinced of the quality of the product, they stick to it. In the last few years the quantity of goods purchased by this industry has been next to phenomenal."

This statement by a leading distributor points up the profitable, expanding market brick and clay products plants offer manufacturers of materials handling, excavating and other equipment.

*Clay product plants are also big buyers of basic materials* used to provide strength, color and finish to brick, tile, refractories, and other clay products.

. . . *and processing equipment*, such as mixers, grinders, sprayers, kilns, firing apparatus, refractories, dryers, forming machines, control systems, testing devices and others.

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. . . *and CERAMIC DATA BOOK*—the *only catalog file* for all ceramic and other clay products materials, equipment and supplies. Referred to daily, throughout the year, by the 33,510 buying and operating executives in the 7000 ceramic plants across the country producing brick, tile, refractories and other clay products.

# Brick & Clay Record

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# Clay Products

## packaging and transporting

The articles in this section of Brick and Clay Record are not, necessarily the ultimate answer in packaging and handling. They are only reports on studies now being made of the problem, and of methods now being used with varying degrees of success by clay products manufacturers . . . "Progress reports" for the clay products manufacturer so that he can keep abreast of developments and aid, through his engineers, in the final solution.

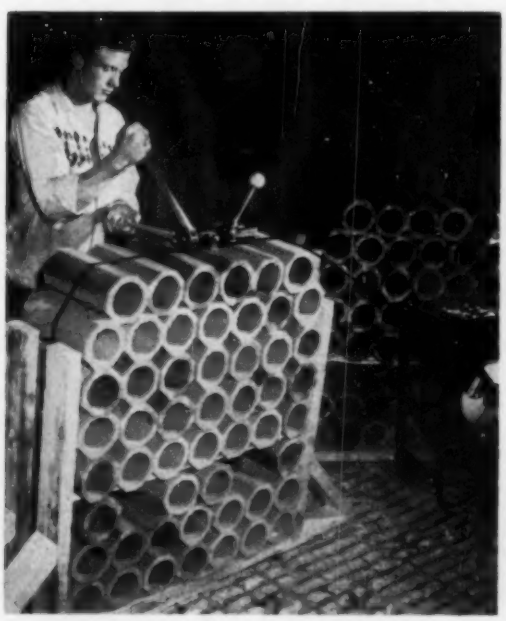
### All Agricultural Tile Packaged At Clayburn

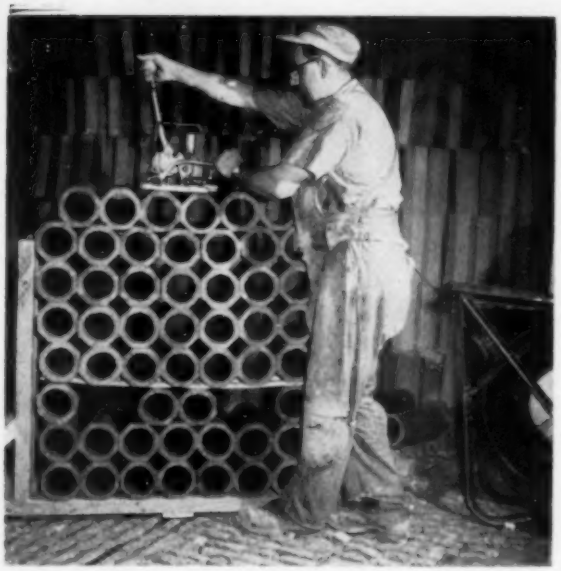
A product new to the company, 4" x 12" agricultural tile in octagonal shape, has never been sent unpackaged by the Clayburn Plant Div. of Evans, Coleman & Evans of Abbortsford, British Columbia.

Loading and unloading time has been greatly reduced with one man now unloading a truck in 20 minutes with a fork lift truck; by the old hand loading method, Clayburn Div. figures the same job would take six men some three to four hours.

Aside from the actual strapping equipment, all that's needed is a wooden jig and three wooden slats to complete a 52 tile package that is strapped as a unit with two other packs.

When the tile reaches the customer, the horizontal strap is cut and the tile is easily sold and handled in the 52 tile units.





# 20 Minute Unloading Time for Tile

**Evans, Coleman & Evans of British Columbia have cut tile unloading time from six men occupied for up to four hours to one man unloading in 20 minutes.**

Since beginning production of 4-inch octagonal agricultural tile at their Clayburn Div. plant, Evans, Coleman & Evans of Abbortsford, B. C., Canada, have exclusively used packaging to save both manpower and time. Well-sold on packaging, other plants of the same company make and palletize all types of brick, including firebrick.

The system in use at the British Columbia plant was developed by Malcolm Heino, shipping superintendent. Aside from the actual strapping materials, all that Evans, Coleman & Evans uses is a wood strapping jig and some 1x2″ wood slats.

### Jig Used

As the first step in package makeup, the jigs used in unitizing the agricultural tile are set up inside the kiln. The jigs hold some 52 tile, 4x12″ octagonal.

The workmen then stack two layers of 9 tile across. The third layer in the package consists of one tile on each side and two in the middle, creating the necessary voids for fork lift truck tines.

### Three Wood Slats

Three of the 1x2″ wooden slats are placed across the third layer and six additional layers are placed above it, making the total of 52 tiles. One strap is then placed vertically around the unit, tensioned, and sealed.

The unit is then removed from the jig by lift truck and moved outside the kiln.

Three units of 52 tile each are lined up and strapped together by running a horizontal strap through the end tiles of the layer above the fork openings. This is not done inside the kiln because of lack of space.

Equipment used by Evans, Coleman & Evans at the Clayburn Div., plant is all supplied by Acme Steel Strapping. The strap used is ⅝″ x .023″ TP strapping. Forty-eight feet of strap is used per unit. The plant has a 205 steelstrapper, a sealer and a reel stand.

When the tile reaches the customer, the horizontal strap can be cut and the tile is then sold and easily handled in 52 tile units.

A truck can be loaded with unitized tile by one man with a fork lift truck in just twenty minutes. It would take a crew of six men 3 to 4 hours to do the same job by hand. The unloading times for unitized and non-unitized tiles are similar.

The Clayburn Div. plant is doing no other brick packaging at this time. Both the agricultural and the packaging set-up were adopted at the same general time and Clayburn has never shipped any tile unpackaged. The same plant manufactures flue liners and drain tile.

## Small Company Mechanization

The adoption of automation by the nation's large producers is being paralleled by an equally significant trend toward mechanization among small manufacturers and distributors, according to R. F. Moody, Eastern Division Sales Manager of the Hyster Company.

"This trend may, over the next 10 years, have an even more significant affect on our economy and its manner in which we do business than any other single factor," Moody said. Pointing out that the decreasing availability of manual labor and the increasing demands for better service at no increase in cost are putting a squeeze on the small businessman, he continued:

### Mechanization Necessary

"Mechanization is the only way by which the small concern can keep its costs in line and expand its service without investing heavily in new facilities. Expansion without mechanization is uneconomical. Economical operation results only when available facilities are used in its most efficient manner—something which, until now, small business has not always done. But the small businessman is becoming aware of this, and is starting to mechanize by bringing his handling methods up to date.

"This is the area of greatest return. The amount of money that can be saved by the application of modern handling techniques and equipment is substantial. Various sources have estimated that from 20 to 70 percent of the cost of manufacturing a product is directly chargeable to handling; the percentage depends, of course, upon the plant and the product. But in distribution industries, handling costs totaling 50 percent or more of operating costs are not in the least unusual.

### Need Modern System

"These conditions must and are being corrected. We cannot continue with a 1956 manufacturing system and 1906 distribution methods. Neither can we exist with highly efficient, automated assembly plants and ineffective suppliers and subcontractors. This is apparent to the small businessman in every industry, and he therefore is buying not only lift trucks and tractors, but conveyors, hoists, yard cranes, and even palletizing machines. This trend is already changing the ways we package and ship our products . . . the manner by which we store and merchandise them . . . and to some extent, the methods we use to deliver them to the customer.

"It is even affecting the equipment manufacturer. Hyster, although it is one of the country's largest manufacturers of gasoline powered industrial trucks, has more of its equipment at work in small companies than in large. It is selling lift trucks, industrial tractors and straddle type carriers to some companies employing as few as four or five people, and many thousands of its trucks have gone to companies employing fewer than 100 people. A sizeable percentage of these companies are first time buyers. They never had mechanical handling equipment before. Formerly, all of their handling such as in-plant movement of goods, loading and unloading of trucks and freight cars, and stacking for storage was done manually or with manual equipment. Now they cannot afford to rely on manual effort alone.

### Nationwide Trend

"All types of industries are mechanizing," Moody said. "Retail lumber dealers are doing an excellent job. So are local bottlers, who are using lift trucks for handling cases from the warehouse or plant and loading them into special compartmented trucks—furniture warehousers and movers . . . brick and clay producers . . . and even contractors, who are hauling building materials and structural steel direct from storage or the freight yard to the building site with straddle carriers. The trend is nationwide and across all industries."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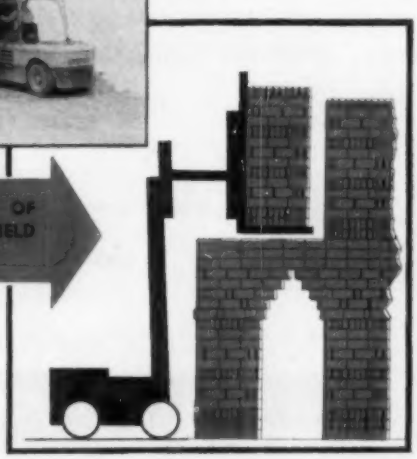

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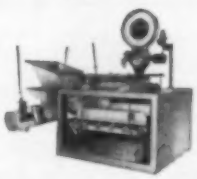

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# Decisions That Affect Your Tax

**This article is based on information supplied by the American Institute of Accountants, the national professional organization of certified public accountants, and checked for technical accuracy by the Internal Revenue Service.**

Long-range tax planning in today's business world of high tax rates is no longer "big business foolishness". Last-minute tax worrying with no year-around tax thinking can result in the loss of sizeable savings for small and medium-sized businesses when it comes time to file a tax return.

For example, assume that last summer you were forced to replace your air conditioner. You shopped around and found you could either sell your old unit to a private party for $500, or a dealer in town would give you a trade-in allowance of $500 on it. That seemed like six-of-one-half-a-dozen-of-another to you; so without thinking—or worrying—about tax matters you traded in the old air conditioner.

### Tax Cost

To prove how such a seemingly simple business decision such as this can affect how much tax you will have to pay, let's assume further that the air conditioner which you traded had orignally cost $2500 and that you had taken $1000 in depreciation on it. This meant its cost for tax purposes was $1500, and you were going to "lose" $1000 whether you accepted the dealer's trade-in allowance of $500 or sold to the private party for $500.

So far still six-of-one-half-a-dozen-of-another, but now since you elected to trade-in your old air conditioner, let's see how you can claim a deduction on a tax return for your $1000 loss. The answer is simple. You can't. All you can do is add the amount of the loss to the cost of your new unit, and eventually receive tax credit for your loss in the form of slightly higher depreciation deductions.

### Loss Deduction

On the other hand, if you had made a bona fide sale of your old unit to the private party and a separate purchase of a new unit from a dealer, you would have established a $1000 loss which could be claimed as a loss deduction on a tax return and used to offset regular income.

It is not always true, of course, that a loss deduction on the tax return is worth two in the bush of depreciation, but a general rule to consider when you are trying to decide whether it would be more advantageous taxwise for you to sell or trade-in an asset is: sell "loss" property to obtain a deduction, and trade "profit" property to avoid the tax which must be paid on any profit realized from the sale of an asset.

## TAX Continued

You may find that you have sold yourself into a capital gains tax or traded yourself out of a loss deduction if you have not figured your depreciated costs correctly. This is a matter you should discuss with a certified public accountant. Not only can he verify the accuracy of your mathematical computations, but he can also explain the advantages and disadvantages of the various methods used to compute depreciation. It could be that the method you use or are using is not the one best suited to your business needs from a tax standpoint.

### Different Methods

For example, if you asked a CPA whether you should use the straight-line or declining balance method to depreciate your new air conditioner, one of the first questions he might ask you would be: what are your cash requirements and what are your profits likely to be? If you are thinking of expanding and need additional cash within the next few years, he might recommend that you use the "new" declining balance method to compute depreciation.

The declining balance method "speeds up" or increases depreciation rates. This starts the chain reaction to your objective of retaining cash in the business, because when you increase depreciation rates you also increase allowable depreciation deductions on your tax return. The amount you may write-off the first year is twice what it would be if you used the straight-line method; so by applying a $1000 instead of $500 depreciation deduction against your regular income, you are going to reduce your taxes, and cash that does not have to be paid out in federal taxes can be retained in the business for expansion purposes.

It seems all good things eventually come to an end, however, and while in the first year the declining balance depreciation rate may be double that of the straight-line, this differential diminishes in succeeding years until declining balance deductions are even less than they would be under the straight-line method. This is why it is important that you consider current and future earnings before you select a depreciation method.

### Consider Earnings

For example, if your current earnings are low, or if you are putting in a new line of merchandise and the results of this expansion will take a few years to show in your earnings, it might be more advantageous taxwise for you to use the straight-line method of computing depreciation.

The straight-line method does not "speed up" depreciation deductions. It spreads them out equally over the estimated useful life of the asset; so when you use a straight-line method you are saving, in a sense, for a rainy day.

**(Continued on page 108)**


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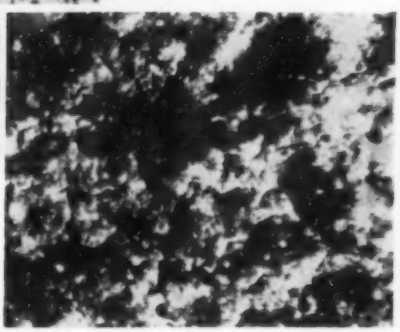

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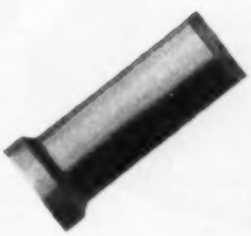

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# Chambers' First Hundred Years

When BRICK & CLAY RECORD was established, in 1892, Chambers Brothers Company, of Philadelphia, had already been in the business of serving the same industries for 35 years. This year of 1957 marks the first century for the firm started by Cyrus Chambers, Jr., and his brother Edwin back before the Civil War. And business as usual—more of it than ever—is the order of the day, which is just what the ingenious and industrious Cyrus and his backer-brother would have liked.

The Company which was one day to enjoy the unique position of supplying a complete line of processing equipment for structural clay products, refractories, and sewer pipe—it is the only one to occupy this position among clay machinery manufacturers today—began in the original mind of Cyrus Chambers.

### A Born Inventor

He was typical of the many great innovators who started this nation rolling in the wonderful, awakening days of the Nineteenth Century. A born inventor, he early became a skillful mechanic, and by the age of ten had produced a working steam engine of pewter and brass.

At fourteen he was experimenting with electricity, and a year later was seized with what amounted to a mania for the rotary steam engine. The gold and silver miniature working steam engine he built that year is still an attraction in Philadelphia's famous Franklin Institute, and in Chambers' day it was exhibited at the great expositions, including the fair of the Sanitary Commission during the Civil War.

### Became Machinist

Cyrus Chambers, Jr., started his working career tending the looms in his father's textile mill. This did not satisfy his mechanical bent, and at his own request he was appointed to a machinist, F. M. Pennock, in the shop then at Kennett Square, Pa.

This was followed by an apprenticeship to his dentist brother, which, after two years, led to his starting his own business, at the age of seventeen, backed by the perceptive and indulgent brother, Edwin. For the new firm, Chambers Brothers, Cyrus's first outstanding contribution to the industries he was so long to serve was the first cutter in combination with and synchronized to an auger machine.

Many more basic machines were to come from his mind and hand, including paper folding machinery vital to the expanding publishing industry, some models of which Chambers Brothers Company still builds on order.

By 1911, when Cyrus Chambers, Jr., died, his company had long been an acknowledged leader, and it continued to grow. It was the first, for example, to work on de-airing machinery, starting this revolutionary development in 1922 and winding it up with eagerly awaited commercially practical machines first introduced in 1933.

The present management of Chambers Brothers Company, headed by Lindley S. Bettison, acquired the interest of the Chambers family in March, 1947. Getting off to a running start, the Company under its new aegis has been extremely active in modernizing designs and introducing new techniques.

In less than six years, all basic machines had been re-designed, and many new machines never before made before had been introduced. At the same time, and throughout the past ten years, a large part of earnings was ploughed back into the modernization of plant and facilities.

The completely re-built foundry, now an authorized Ni-Hard producer, is a case in point. The job that is being done at Chambers, in fact, would have pleased, and might easily have amazed, the great Cyrus.


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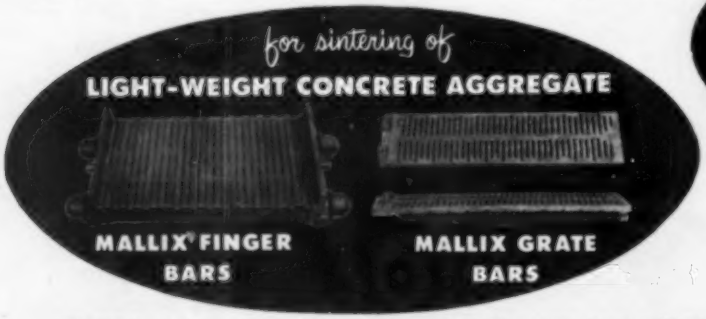


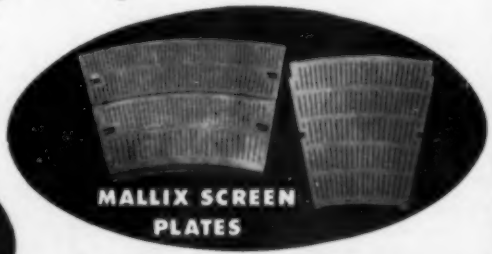


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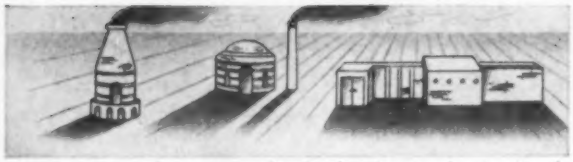

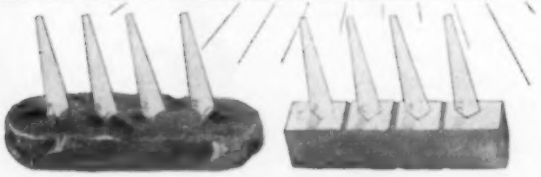

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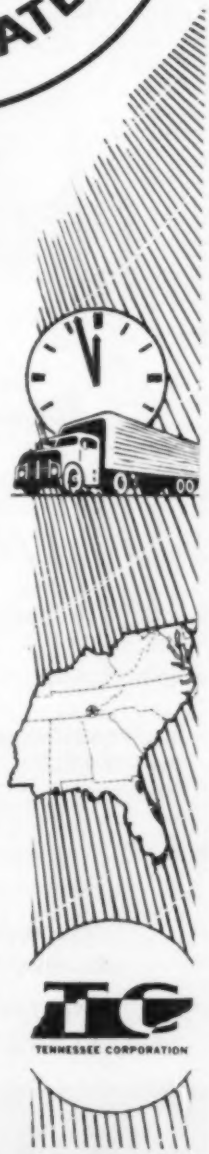

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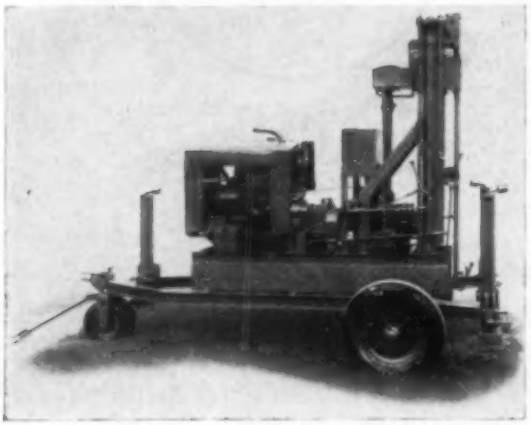

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# "Rube Goldberg" Power Transfer Units Solve Handling Problems for Golden Brick

Swift transfer of brick from the cutter to dryers and dryer to kilns has been made possible at the recently rejuvenated plant of Golden (Col.) Brick Co. with construction of the two "Rube Goldberg" tow units, pictured herewith.

Built at a cost of approximately $1,000 each, the units were assembled largely from scrap metal, pipe, and automotive parts. Built around a seven horsepower Briggs and Stratton four cycle engine, each of the two units is powerful enough to move three cars of brick.

Each unit, as pictured, is approximately the size of an ordinary car, but rests on oversize axles and flanged wheels which were developed for the purpose. The unit used inside the brick machine shed travels a distance of 200 feet, from the cross-the-belt loading point to the dryers, moving at a speed of one or two miles per hour.

For impressive tractive effort with only seven horsepower, the power transfer unit depends on a cone arrangement which also incorporates a reverse, transmitting power to one of the axles through a heavy chain and a pair of sprockets, with an appalling reduction ratio between the drive sprocket and the axle sprocket.

### Single Level Control

The cone arrangement, part of the small stationary engine, is controlled by a single lever, which, when moved forward starts the car forward, puts it in neutral when held straight up, and reverses it when the lever is pushed to the rear.

Brakes, for the extremely heavy load transported, were made up from a brake drum and shoe salvaged from an old Caterpillar old-tread tractor, and are sufficient to stop the slow moving vehicle almost instantly. The brake is mounted on the free axle, where it, of course, transmits power to two wheels simultaneously.

### Maintenance Simple

The operator stands on a deck of sheet steel, with a waist high railing of heavy pipe all the way around for protection. An ordinary foot starter puts the engine into motion and since it is entirely "out in the open", services, maintenance, carburetor adjustments, fueling, etc., are relatively easy.

The second car, which sees service between the dryers and kilns, likewise travels a distance of 200 feet. The only difference between the outside unit, according to Toni Vitale, superintendent, was the substitution of a heavy truck gearbox transmission, which carries power to a worm drive to the axle. The decision to use the truck gearbox was based on the fact that the cones built for much lighter loads on the small one-cylinder engines were showing signs of trouble frequently.


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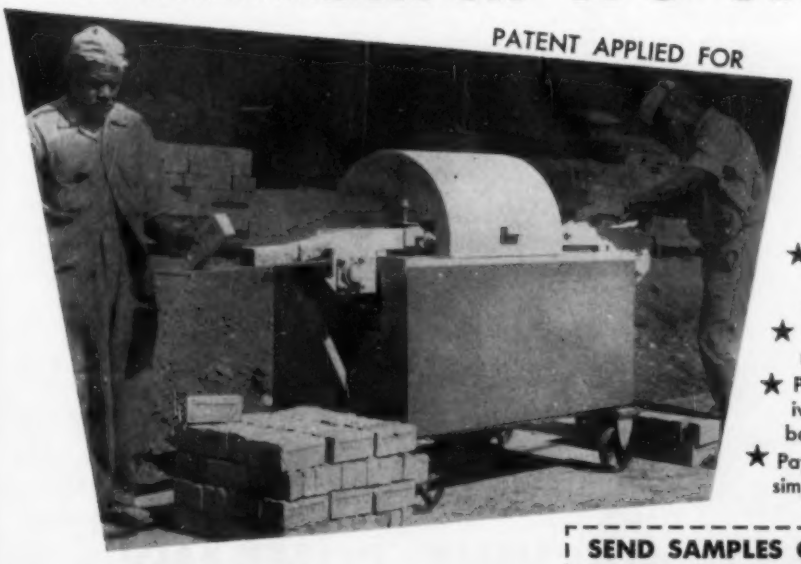

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## TAX Continued

When your earnings improve or increase, you will have more substantial depreciation deductions to apply against those earnings. There usually is no point in increasing a loss or reducing low earnings by claiming additional depreciation deductions when you do not need them.

### Equipment Purchases

A point to remember when you are trying to decide whether to buy new or used equipment is that second-hand equipment must be depreciated by the straight-line method. This tax factor should be considered, because loss of the opportunity to use the declining balance method with its rapid write-off feature may cancel any immediate savings effected by the purchase of used equipment.

### Corporation or Partnership?

The matter may have been decided and forgotten many years ago, but a basic question businessmen should consider from time to time—and one which has many tax implications—is whether to do business as a proprietorship, partnership or corporation. There may be personal or professional factors that force the selection and maintenance of a non-corporate form of organization, but depending on the earnings of the business and the amount of those earnings you may need to withdraw, there are certain tax advantages to be gained by incorporating a new or expanding company.

### Different Rates

Since proprietorship and partnership income is taxed at individual rates, which range anywhere from 20 percent to 91 percent, and corporation earnings are taxed at corporate rates of 30 percent on the first $25,000 earned during the year and 52% on the excess, it might appear that if you have relatively low income the proprietorship-partnership rates are lower. However, you must also consider that the corporate tax carries with it the privilege of deducting a reasonable salary paid to an employee-owner. The employee-owner has to pay a personal tax on his salary, of course, but if he were not incorporated, he would have to pay a personal tax on all the money earned by the business.

### Retained Earnings

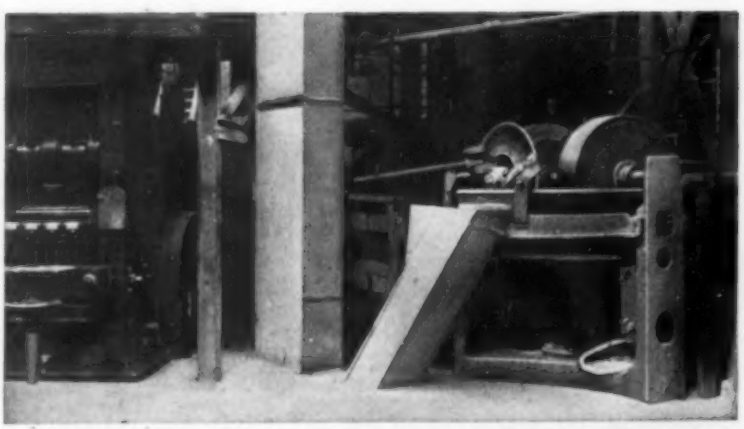
If the retained earnings of the company are taxed at a corporate rate which is lower than what the personal tax rate would be, the employee-owner would benefit by having additional funds available in the corporation for expansion purposes. These funds may be accumulated in a corporation up to $60,000 without further tax penalties, and even higher if the corporation can prove a need for them.

### "Double Tax"

These advantages—while they may cut your current tax bill and increase working capital for expansion needs—can be lost if you have jumped into a corporation without first reviewing your own long-range cash requirements. If you are continually forced to withdraw money from the corporate earnings to pay personal expenses, you will have to withdraw these funds in the form of dividends. That means the corporation will have to pay tax on the earnings you are withdrawing as dividends, and you will have to pay tax on the dividends received. The "double tax" on earnings and dividends can nullify any tax advantage from incorporation when earnings must be withdrawn immediately as dividends.

Many businessmen seek professional advice about tax matters as they do professional assistance with their golf game—when the slice has become almost unbearable. You can save tax dollars by realizing that business decisions made in the fall affect the amount of tax you must pay in the spring. Practice year-around tax thinking, and consult a certified public accountant when you are in doubt as to the tax effect of even the most routine business decision.


# THE CLEARFIELD MIXER



No. 610 Clearfield preparing dry press material in fire brick plant.

Write today for Bulletin C-5 for complete information.

## For Ceramic and Refractory Materials

In preparing clay materials for use in ceramic and refractory plants, the Clearfield Mixer with the revolving bottom is the most efficient and economical means of blending and tempering. Dry, semi-dry and high moisture content mixes are produced with thorough diffusion of all components of the batch. There is no segregation of larger or smaller parts. A uniform, even-textured clay mixture is produced with no lumps or voids. If you have a mixing problem, contact us for technical assistance.

## CLEARFIELD MACHINE COMPANY

CLEARFIELD, PENNSYLVANIA

Pacific Coast Representative: Fernholtz Machinery Company, 8468 Melrose Place, Los Angeles 46, California

*another product improved . . .*

# chem·o·sol®

*made this bell and spigot joint a*

## PERFECT SEAL

Bottle-tight clay pipe joints are now possible — and without the use of hot asphalt or other caulking compounds. **Chem-o-sol,** a specially formulated plastisol, is now used to form the new Wedge-Lock* mechanical joint. Permanent flexibility and amazing durability assure no displacement by roots, or seepage due to strong alkalies or acid wastes.

Our R 5209 Tile Red **chem-o-sol** has been tailored to meet the exacting requirements of this in-plant molding operation. Its fast-fusing property allows for easy stripping of the molds and practically eliminates scrap losses. A complete specification sheet is available on request. (Base **chem-o-sol** will be matched to other shades if so desired.)

R 5209 **chem-o-sol** has the required hardness characteristics over a wide temperature range and exhibits outstanding heat resistance. It is available in drums and tank wagons from our new streamlined plastisol manufacturing facilities. Your request for further data or samples will receive our immediate attention.

*Patents pending by
The Robinson Clay Product Co.
T.M. Registration Applied For

**Chemical Products** CP CORPORATION

KING PHILIP ROAD • EAST PROVIDENCE, R. I.

## Cut Special Sizes and Shapes with.. Clipper MASONRY SAWS

• FASTER
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MODEL HD
Wet (Dustless) or Dry Cutting. A Model to fit every budget Priced from $265

**Only CLIPPER Gives You These Patented Features**

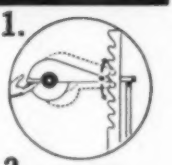
**For best performance — demand this saw with all these features — and see why "4 Out Of 5 Buy Clipper".**

**1. — Select-A-Notch**
Easy one-man height adjustment for cutting any size masonry material.

**2. — Pressure Equalizer Spring**
Cushions blade pressure and makes your blades last longer.

**3. — Wet-or-Dry Pump**
With Patented Water Application supplies water to the cutting edge where it should be.

**4. — Adjust-A-Cut**
Frees the Cutting Head for finger-tip control at any desired height.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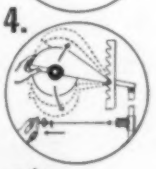
2.

3.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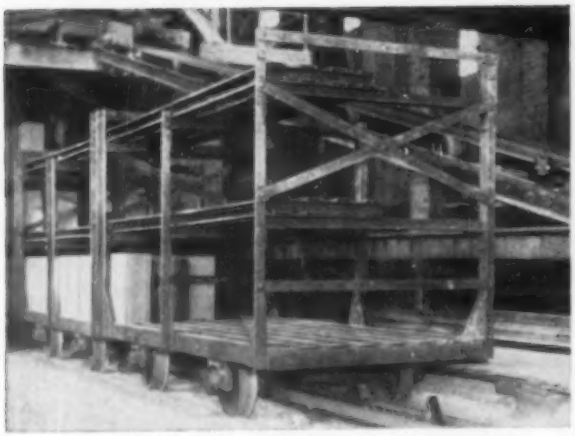
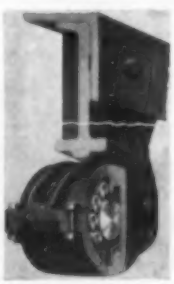


Dryer cars at Jenkins Brick Co., Montgomery, Alabama

## Standard Dryer Cars by Chase

DUST PROOF OIL RETAINING BOXINGS, keep bearings free from grit and sand.



FLEXIBILITY OF BOXING takes care of irregularities in the track, car frame, or bent axles without increased friction.

All dryer cars, single, double, and triple deck, are equipped with patented Chase bearings. These are dust proof, oil retaining, flexible boxing with roller bearings. Note also the renewable steel liner and heavy, strong construction of our bracket and boxing. For 15 years' service, order Chase cars with Chase bearings.

Chase FOUNDRY & MANUFACTURING CO.

*INDUSTRIAL CAR AND TRUCK BUILDERS FOR OVER FIFTY YEARS*

2300 PARSONS AVENUE • COLUMBUS 7, OHIO

## The UNBEATABLE PAIR for Improving Quality and Color of Brick at Reduced Cost

## HAUCK High Pressure Gas Inspirator and Elbow Type "Retain-a-Flame" Burner Nozzle

1. Patented nozzle combining a long sweep elbow with flame retaining nozzle into one short unit. Assures proper delivery of mixture without extra pipe fittings.
2. Will outperform conventional assemblies using an ordinary pipe elbow with close nipples and a straight nozzle.
3. Streamline flow of mixture to nozzle permits wider range of operation and greater turndown.
4. Reduces backfiring on low fire.
5. Permits easy conversion to stand-by oil firing, without special fittings.
6. Adaptable for spark plug ignition or for raw gas pilot or flame scanner.
7. Single valve mixer control for maximum air entrainment and automatically maintained air-gas ratio; easy to adjust.

In one brick plant 150 of these Hauck units replaced "bent pipe" raw gas burners on beehive or round downdraft kilns. Besides gas savings of 17 to 20%, the better firing now gives uniform color throughout the kilns. Brick sorting problem has been eliminated. Heat and pressure in the kilns are completely controlled. Low fire turndown is very satisfactory. Many other plants have also found it worthwhile to use this "Unbeatable Pair."

*Write for Catalog 804C and 806A.*

HAUCK MANUFACTURING CO.

145-155 Tenth Street • Brooklyn 15, N. Y.

## Novel "Sleeve" Carton Protects Tile Veneer

Advanced research in the packaging for shipment of its "Vitri-Neer" tile product has come up with a highly unusual development in shipping cartons at Robinson Brick and Tile Company, Denver, Colorado.

Currently, only scratching the surface of this practically limitless future market, the Robinson concern has been carefully eliminating as many distribution problems as possible in advance while gearing up production facilities which will result in distribution of approximately 18 varieties of tile veneer throughout the U. S. and other markets.

One of the major problems which cropped up immediately, of course, was that of packaging. Manufacturing Vitri-Neer for only a little more than one year, Robinson Brick and Tile Company naturally found that it was entering a "virgin field" so far as packaging and shipping went. None of the methods which have been successfully developed for brick and tile block shipping would, of course, suffice where Vitri-Neer products are concerned.

### Developed New Carton

This was the basis on which Sam Parks, head of the shipping division of Robinson Brick and Tile Company, developed the carton, pictured herewith. This, the end product of much research and developed from continuous experiments with various types of boxes and reinforcements, is a heavy corrugated box accommodating a dozen pieces of Vitri-Neer with a tight fit at either end but a comparatively loose pack from the sides. This space is filled up by a corrugated cardboard "sleeve" which, folding over at the ends, supports the tile panels at the bottom, runs up the side, and folds over the top where the natural resiliency of the cardboard plus the fact that the sleeve can shift from point to point provides an effective cushioning effect.

### 57c Each

Built for the Robinson concern at a cost of 57c each, the boxes have been given a series of rugged tests. Among the most interesting was the fact that Robinson dealers throughout the nation and even as far away as Canada, were shipped boxes of tile with a form sheet included in every box asking the dealer to inspect the condition of the tile upon arrival, write his comments, put the sheet back in the case and return the box collect.

In more than a dozen such shipments, carried out over a considerable period of time, it was found that not a single piece of tile had broken. The combination of cardboard spaces between each tile and the sleeve which can move slightly to absorb shock was able to withstand shipping by railroad freight car when strapped on wooden pallets and even when neatly stacked in box cars without damage. Several thousand of the containers shipped throughout Robinson's huge distribution area have likewise arrived without a reported case of cracking, chipping, or breakage.

1 BESSER Batch Mixer
2 BESSER Skip Loader
3 BESSER Vibrapac
4 BESSER Off-bearing Hoist
WINNING COMBINATION
for Block Makers...
Here is the ultimate in block making equipment . . . the Besser Unitized Vibrapac with Batch Mixer, Skip Loader and Power Off-bearing Hoist . . . all on one floor. Steps up block production . . . saves manpower. Produces three 8 x 8 x 16 block (or equivalent) at a time, on one Plain Pallet, with capacity up to 10,000 block per day. Overall dimensions of unitized machine is 37′ long, 14′3″ wide and 23′6″ high.
If you want to increase production of high quality block, consider this winning combination. Ask your nearby Besser representative for literature.
BESSER COMPANY ALPENA, MICHIGAN, U. S. A.

## A NEW CONCEPT IN GAS BURNERS FOR PERIODIC KILNS

Tate-Jones
**JET BURNER**

- **Won't blow out! . . even in 65 mph wind**
- **2 burners in one**
- **Usable with all types of fuel gases.**

THE Tate-Jones JET BURNER brings a new concept in burners for periodic kilns. Never before has such a small package been able to produce so much power.

Actually two burners in one, the ring portion of the JET BURNER is a built-in pilot with capacities of 30 cu. ft. to 1000 cu. ft. per hour natural gas; the main jet can be adjusted from zero to 5000 cu. ft. per hour.

Flame safety devices may be attached directly to the self-piloting JET BURNER assembly.

Gas pressure from 8 Oz. to 20 psi are used with normal draft conditions.

*Oil Burner Attachments Available.*

***Write or Call***

***For Bulletin 506***

*Engineered Furnace Accessories*
**TATE-JONES DIVISION**
Continental Equipment Co.
200 MAIN ST. CORAOPOLIS, PA.

## WE CAN DELIVER*...

★ SOFT MUD BRICK MACHINERY ★ PUGMILLS
★ ROLL CRUSHERS
★ DISINTEGRATORS ★ GRANULATORS
★ WINDING DRUMS ★ SAND DRYERS
★ MOULD SANDERS

*POTTS ENGINEERING AND MANUFACTURING FACILITIES ARE AVAILABLE FOR IMMEDIATE PROCESSING OF YOUR ORDER. THIS MEANS MINIMUM DELIVERY TIME.

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POTTS — FOR QUALITY CLAY MACHINERY
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**ALL NEW IN DESIGN**

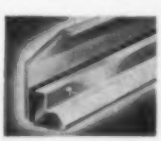
*WRITE FOR NEW BROCHURE*

**HANCO ELECTRIC SCREEN HEATERS**

Hanco heaters with quick change attachments are quickly installed and easily adapted to new or existing screen installations.

EXCLUSIVE SCREEN TENSIONING DEVICE (Replaces Existing Parts)

Fiberglass plate insulates conductor from frame, eliminates draw bolt insulators. Wedge-shaped conductor bars offer positive contact with cloth.



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**F. R. HANNON & SONS**
1603 WAYNESBURG RD., S.E.
CANTON 7, OHIO
ENGINEERS — *Since 1926* — MANUFACTURERS

### Koehring Merges With Buffalo-Springfield

A joint statement has been issued by President Julien R. Steelman of Koehring Co., Milwaukee, and by President Carl F. Greiner of Buffalo-Springfield Roller Co., Springfield, Ohio announcing the completion of plans to merge the two firms.

The agreement was signed by all stockholders of Buffalo-Springfield and a representative of the Koehring board, to be effective December 1.

Steelman said, "This merger brings together two of the oldest and leading manufacturers of construction machinery. . . ." Koehring, for the first time, will supply such equipment as road rollers, soil compaction equipment, etc.

The Buffalo-Springfield company will operate as the Buffalo-Springfield Roller Div. of Koehring.

### Duncan, Griffin Form Clay Machinery Co.

Oscar Duncan, former chief engineer, and Bob Griffin, former ass't. general manager of the Stevenson Clay Machinery Co. have organized the R. A. Griffin Co., Canton, Ohio. They are engineering, designing and selling a complete line of clay machinery and specialize in newly designed replacement parts for Stevenson machinery that are available from stock in most cases.

New Castle Ni-Hard and other high grade metals are featured. Their street address in Canton is 220 25th St. N.W.

---

The appointment of Donald Foster as manager of dealer business management, a new department just created by **Stran-Steel Corp.**, Detroit, has been announced by C. V. Blackburn, vice-president in charge of sales.

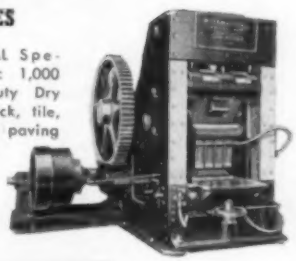

Call FERNHOLTZ First!
Fernholtz Machinery Co., 8468 Melrose Pl., L.A. 46
OL 3-2360

For Your Brick and Clay Plant Requirements

DRY PRESSES

INTERNATIONAL Special automatic 1,000 ton Heavy Duty Dry Presses for brick, tile, refractory and paving block, deairing available.

Automatic One Cycle Operation



EXTRUSION—DE-AIRING & PUG MILL

International Vac-Aire double deck Condor Special combined extrusion, de-airing machine & pug mill. All welded construction. Capacity 10,000 to 25,000 brick per hour or comparable quantity of terra cotta. All bearings mounted outside of machine.

FERNHOLTZ MACHINERY COMPANY
8468B Melrose Place — Los Angeles 46, Calif.



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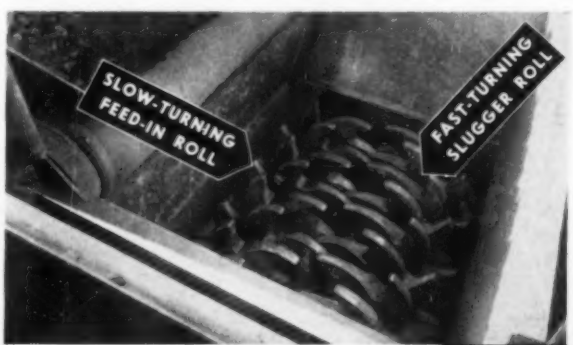



THE EAGLE LINE

THE EAGLE IS THE CRUSHER WITH THE BIG APPETITE!!!

The slow-turning feed-in roll and opposing fast-turning slugger roll positively break up clods of clay or shale as fast as the rolls can get their teeth into them.

Clays or shales are crushed down to ideal size for feeding to dry pans, grinders, or smooth rolls.

The exclusive cutter-crusher-hammermill action of the Eagle Clay Crusher plus its low maintenance cost, is saving money for a great number of brick and tile, refractory, and sanitary ware plants. Three sizes. Send for Bulletin 952.

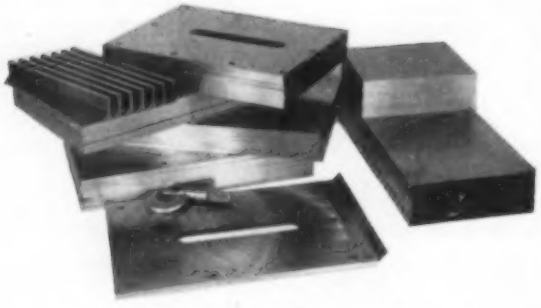
GRINDERS

CLAY CRUSHERS

SHALE PLANERS

EXPERIENCE, PROGRESS, SERVICE, SINCE 1872
EAGLE IRON WORKS
131 HOLCOMB AVE., DES MOINES, IOWA

# ALCON



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LINER HOLDERS (Square, Arch, Wedge, Circle)

MOLD BOXES • PADS • SHIMS

FLAT GROUND TOOL STEEL

*Any Grade or Brand*

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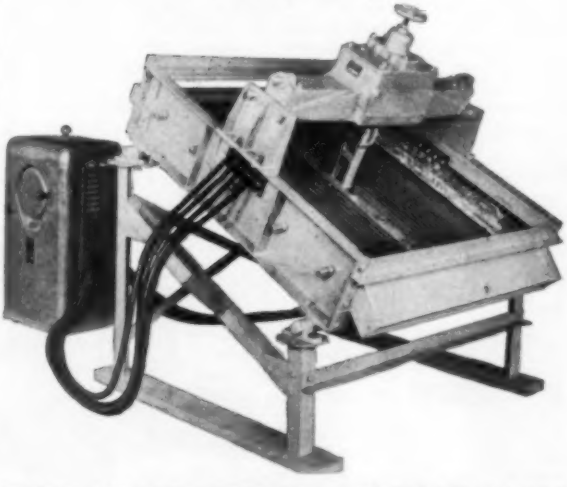
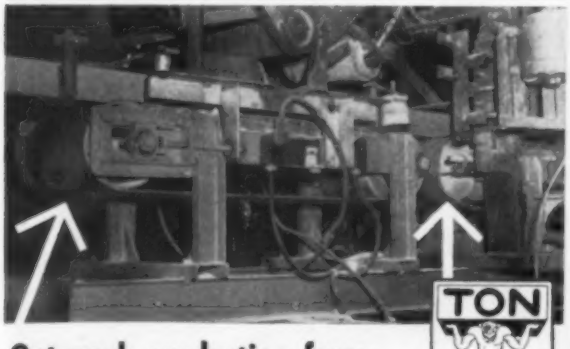
# HUM-MER SCREEN WITH TY-ELECTRIC HEATER

***"for efficient screening of damp clay"***



**THE W. S. TYLER COMPANY**

CLEVELAND 14, OHIO



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The right belt gets the most production from a brick-cutting machine. Ton-Tex Oil-Ex is a tough, durable belt, highly resistant to oils, water, heat, abrasion. Minimum shrinkage and stretch — little down-time for take-ups. Oil-Ex is made of plies of selected cotton duck firmly bonded together with Neoprene and special compounds. Made in 2 types of duck, 7 different weights. Can be vulcanized endless.

For peak production get all the facts on Ton-Tex Oil-Ex belts.

*Write for 20-page catalog — FREE "Ton-Tex Conveyor Belting In Industry"*

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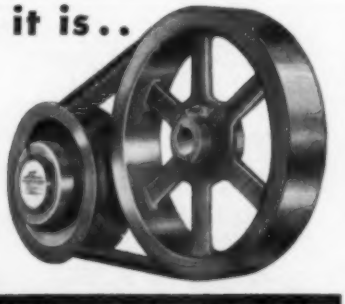
**TON-TEX** CONVEYOR AND TRANSMISSION **BELTING**

**here it is..**



***New* VARIABLE SPEED DRIVE**

**an easy, economical way to vary driven speed**

By simply turning an adjusting screw, on either side of the sheave, both flanges move simultaneously and speed changes are obtained quickly and easily. Positive clamping of the two adjustable flanges eliminates fretting corrosion. Single wide range belt for motors 5 to 20 horsepower provides speed range ratios up to 3 to 1 . . . no lubrication . . . less shaft overhang . . . sensibly priced and economical in operation . . . send for Bulletin #796 for detailed information.

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**OUR SINCERE THANKS** TO THE BRICK AND TILE COMPANIES THAT HAVE HELPED US MAINTAIN LEADERSHIP IN THE BARIUM FIELD.

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***GLAZE FRITS***—Lead bearing and leadless compositions for all types of glazed ware. Laboratory controlled to insure uniformity.

***BODY STAINS***—Made to meet all requirements of your clay body. Guaranteed uniform color throughout.

***ENGOBE STAINS***—A complete palette of Engobe Stains for slip painting and all-over Engobe decorations.

***GLAZE STAINS***—Pastel and brilliant color shades with wide firing range and stability at high fires. Best for uniformity, strength and true color with workability.

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**PITTSBURGH 30, PA.**
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**3. CLEANER OPERATION** — by eliminating 95% of the smoke nuisance.
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Flashes Red Clays to Dark Reds, Blacks and Gun Metal Shades

*Write for information.*

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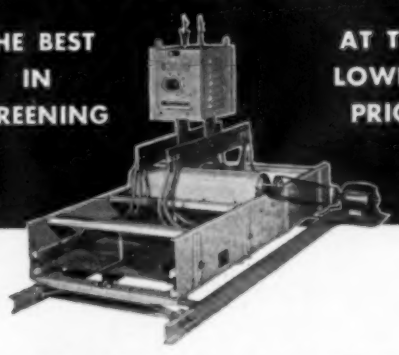
THE BEST IN SCREENING

AT THE LOWEST PRICE



**The Most Modern and Efficient Electric Heating Equipment**

**SURPRISINGLY LOW IN COST**

Be sure to get the facts regarding the new improved Universal Screens and Unilec Heating! Just ask for catalog #150.

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Quality Screens Since 1919

Tufhorse KANT-RIP
MITTENS
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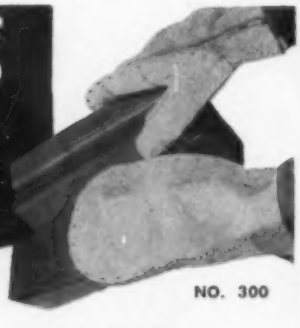

NO. 300

# PROTECT WORKERS' HANDS!

HEAVY SPLIT-COWHIDE MITTEN NO. 300.
$12.60 PER DOZEN PAIRS.

Avoid costly injuries to the hands of your workers by giving them the protection they need—Tufhorse gloves, hand pads or mittens. Made of the finest cowhide, they are flexible and comfortable to wear.

*ORDER SAMPLE PAIRS AT "PER-DOZEN" PRICES*

Please send me samples of
☐ Glove No. G-9 ($16.50 per dozen pairs)
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(All F.O.B. Des Moines)

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DES MOINES GLOVE & MFG. CO.
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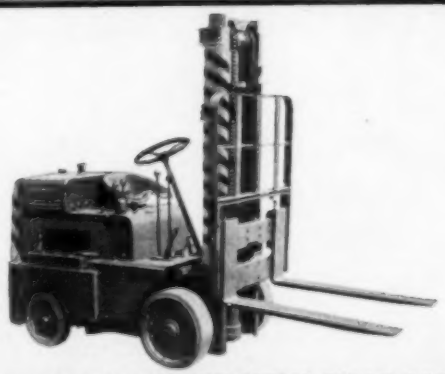
RECONDITIONED FORK LIFTS



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**Projects**

A Modern Brick Manufacturing Plant

**Face Brick Plants,**
**Sewer Pipe Plants,**
**Refractories Plants**
**Alterations**
**Improvements**

**Grinding and**
**Batching Plants**
**Drying Rooms**
**Dryers**
**Tunnel Kilns**

**6621 DARLINGTON RD.**
**PITTSBURGH 17, PA.**

**Stran-Steel Buildings**

A colored booklet, illustrating various kinds of building and construction methods used in their steel buildings, has been published by Stran-Steel Corp., Detroit 29, Mich.

**Fork Lifts**

307/Circle on Reader's Service Coupon

A complete brochure containing a cross section of information on fork lifts is now available from Memphis Equipment. The brochure contains information on performance, uses and other data on some of the leading make fork lifts. Write Memphis Equipment Co., 766 S. Third St., Memphis, Tennessee.

308/Circle on Reader's Service Coupon

**Tractor Parts**

A new six-page, two-color pamphlet on Manganese steel tractor replacement parts has been prepared by the Amsco Div. of American Brake Shoe Co., Chicago Heights, Ill. The folder illustrates and describes the advantages of manganese steel in track shoes, scraper blades, sprockets, etc. Also contains a section on welding. Write Amsco, Dept. T, Chicago Heights, Ill.

309/Circle on Reader's Service Coupon

**Radiant Tube Gas Burners**

A new data sheet on the series RTG radiant tube gas burners designed to produce a long flame for better heat distribution has been published by Hauck Mfg. Co., 124-136 Tenth St., Brooklyn 15, N. Y.

310/Circle on Reader's Service Coupon

**Instrumentation Index**

Bulletin G-2 is an index of Industrial Division literature of Minneapolis-Honeywell, covering catalogues, bulletins, specification sheets, data sheets, etc. Minneapolis-Honeywell Regulator Co., Philadelphia 44, Pa.

311/Circle on Reader's Service Coupon

**Hard-Surfacing Manual**

A manual covering applications and product description for hard surfacing materials has been issued by Victor. The book includes a section with illustrations on applications for the clay products industry. Victor Equip. Co., Los Angeles 59, Calif.

312/Circle on Reader's Service Coupon

**Hauls 1-ton with hopper or platform**

Take a new look at Kwik-Mix R-15 Moto-Bug. Automatic power-flow transmission eliminates clutching and shifting — increases power, speed, and gradability. It now travels 12 m.p.h. forward and reverse — climbs 25% grade with 2000-lb. load in hopper or on platform. 15 or 18 cu. ft. hopper is interchangeable with 34 x 54-in. platform — hauls 1-ton loads of bulk materials, or finished products around crushers, kilns, storage yards. And that's not all —

**Lifts 3/4-ton load to 7-foot height**

Fork lift attachment lets you use labor saving R-15 Moto-Bug for lifting, stacking, loading, unloading. It lifts 1500 pounds (at 15-in. load center) — has 7-foot lifting height. Hydraulic power raises and lowers load. Mast can be tilted back 10° when carrying load, 2° forward for pick-up or releasing load. Forks are 24 inches long — and adjustable 6 to 32 inches wide. Also check on S-10 Moto-Bug with multiple attachments for smaller jobs. Ask your Kwik-Mix distributor about both sizes, or write to us for Moto-Bug® bulletin.

**KWIK-MIX CO.,** Port Washington, Wis. *(Koehring Subsidiary)*

Send literature on: ☐ R-15 ☐ S-10 Moto-Bug.

NAME_____

COMPANY_____

STREET_____

CITY_____

STATE_____ KMG13REV. BCR

# WANTED

THE FEW REMAINING PRODUCERS OF GRAY BRICK WHO HAVE NOT DISCOVERED

Foote **Ebony Manganese**

**These men will reward themselves by using Foote Ebony Manganese—the proven way to produce gray brick that is free from unsightly lights and darks.**

**These men will benefit from the uniform particle size of Foote Ebony Manganese—assured by Foote's controlled grinding and rigid screen analysis.**

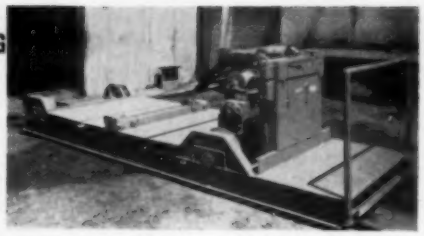
***If you are one of the "Wanted," it will pay you to write to Foote today for the full story on Foote Ebony Manganese.***

**FOOTE MINERAL COMPANY**
**442 Eighteen West Chelten Building**
**Philadelphia 44, Pa.**



**ENGINEERING ASSOCIATES, INC.**

Asheville, North Carolina



**RAPIDLY BECOMING A PRIME SUPPLIER OF HYDRAULIC EQUIPMENT FOR THE CERAMICS INDUSTRY.**

- Kiln Pushers
- Multiple Dryer Pushers
- Automatic Loading or Setting Track Pusher Systems
- Hydraulic Transfer Cars
- Custom Auxiliary Handling Devices

***Exclusive Southern Representative***

**FORREST A. PASCHAL**
**BOX 289, SILER CITY, N. C.**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*See our Catalog in 1955-56 CERAMIC DATA BOOK

# CLASSIFIED ADVERTISEMENTS

## Notice

**New Classified Advertising Rates**

**Effective January 1, 1957**

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale.)

TRANSIENT WORD ADS: 12c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $2.00 each insertion.

POSITION WANTED ADS: $1.50 for 25 words or less; each add'l word 10c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

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$15.00 per inch. On advance orders for twelve consecutive issues, 12.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

**BRICK and CLAY RECORD**

**5 South Wabash Avenue, Chicago 3**

### WANTED—HELP

## REFRACTORIES SALES ENGINEERS

ENGINEERS (Ceramic, Chemical, Metallurgical, or Mechanical) with 3-5 years of production or development experience in refractories.

Rapidly expanding Refractories Division offers promising opportunities working on the application of new high-temperature refractories.

**Location—Worcester, Mass.**

**Send Resume to Mr. T. S. Green**

**Assistant Manager of Personnel**

NORTON

**NORTON COMPANY — Worcester, Mass.**

**Refractories • Abrasives • Grinding Machines**

CERAMIC ENGINER WANTED for leading publication in the ceramic field. Position involves extensive traveling, visiting plants, recording observations and acting as consultant. Writing ability desirable but not required. Position involves unusual prestige and variety of work. Reply in confidence.

**Address 1-YC, care of BRICK & CLAY RECORD**

**Plant Engineer**

Prefer man with degree in Ceramics or Chemistry or will accept Mechanical Engineer with experience in brick manufacture or allied products. This job offers good possibilities for man who is sober and industrious and would like to locate in Atlanta, Georgia, with large, financially stable, well established, local concern. In reply give full information about self, experience, salary expected and when available.

**Address 1-YB, care of BRICK & CLAY RECORD**

West COAST diversified ceramic manufacturer needs MECHANICAL engineers with clay industry experience. Prefer degree and over 2 years' experience. Excellent potential in well-established progressive company. Salary approx. $600. Send resume and references. Replies confidential. Address 1-YA, care of BRICK & CLAY RECORD.

WANTED — CERAMIC ENGINEER with experience in steel plant refractories to represent Midwest producer in the Chicago District. No selling experience needed. Position offers liberal salary, expenses, company car. Please submit details including experience, education, personal data, salary requirements to 1-YE care of BRICK & CLAY RECORD.

WANTED—CERAMIC ENGINEER with established company. Over forty five years producing first quality shale face and common brick. Located Southeast U. S. Must be familiar with operation of tunnel kilns and down draft kilns. Should be capable of assuming position of superintendent. Give educational background, job experiences, references and salary expected. Address 1-YF care of BRICK & CLAY RECORD.

WANTED CERAMIC ENGINEER—with established concern. Over quarter century successful manufacturing quality face brick and facing tile. Young man with experience in glazing and all phases of manufacture. Excellent opportunity. Address 10-XAD, care of Brick & Clay Record.

WANTED—ESTABLISHED MANUFACTURER needs Ceramic and Mechanical Engineers. Excellent growth potential. All replies strictly confidential. Miller Equipment Company, P.O. Box 1566, Salisbury, North Carolina. Phone 6300.

WANTED EXPERIENCED SUPERINTENDENT or Assistant Manager—prefer man with Ceramic Engineering for established Face Brick Plant in Ontario. Excellent opportunity for capable man—many benefits. Address 1-YH care of Brick & CLAY RECORD.

HEAD KILN BURNER, Clay Sewer Pipe, Gas Fuel. Ideal living and working conditions in southern California. Submit resume. Address 1-YI care of BRICK & CLAY RECORD.

REFRACTORIES RESEARCH . . . Ceramic Degree required. Must be capable of assuming responsibility and taking charge of Control Laboratory. Previous experience desired. Position vacant due to promotion. Submit full particulars to 1-YK, care of BRICK & CLAY RECORD.

ENGINEER . . . Mechanical Engineering Degree, industrial or ceramic with minor in mechanical will be considered. Exceptional opportunity for young man to develop personal recognition in multi plant basic industry. Position offers a chance to gain invaluable experience, prove initiative and ideas and advance to executive position. Previous experience desirable but not entirely essential. Submit resume to 1-YL, care of BRICK & CLAY RECORD.

### WANTED — POSITION

EXPERIENCED MAN IN PRODUCTION of brick and tile desires position as Manager or Plant Superintendent. Address 1-YJ, care of BRICK & CLAY RECORD.

WANTED POSITION — As superintendent or manager, have 30 years experience in the manufacture of hollow tile and face brick. Single and free to travel. Best of references Address 12 XE, care of BRICK & CLAY RECORD.

CERAMIC ENGINEER — Experienced in all phases of brick & tile production. Tunnel & periodic kiln construction and operation. Now employed as superintendent. Outstanding record. Desires change. Address 1-YG, care of BRICK & CLAY RECORD.

NOW IN OPERATION . . .

**Ready For Immediate Delivery!**

**MARION 2 CU. YD. MODEL 480 ELEC. SHOVEL**

Powered with
General Electric Motor
Reostatic type control
Additional Service parts available

**Priced at only**

**$6,800.00**

Write for latest listing of our surplus quarry and mining equipment.

**MATERIAL SERVICE CORP.**
Henry K. Levy
Surplus Equipment Department
4226 South Lawndale - Lyons, Ill.
Chicago Phone: BIshop 2-2410

# CLASSIFIED ADVERTISEMENTS

## FOR SALE—USED EQUIPMENT

**MACHINERY BARGAINS**

BOYD MODEL BB 4 MOLD DRY PRESS including 10 H.P. motor and drive.

COMBINED BRICK MACHINES, Steele, American Bonnot & Steele, Automatic

BRICK CUTTERS Freese and Steele. American 233 AUGER MACHINE and American Automatic BRICK CUTTER

FIFTY-SIX roller bearing TUNNEL KILN CARS 86″ x 44″, two TRANSFER CARS.

**FERNHOLTZ MACHINERY CO.**
**8466 E Melrose Place**
**Los Angeles 46, California**

---

**DRY PANS** 4½′ Thropp, 7′ American, 9′ Bonnot, 9′ Stevenson

**CRUSHERS, JAW,** 20x4 Farrel, 12x62 Champ., 14x28 Climax, 15x24 Traylor, w/40 HP drive

**CRUSHERS, ROLL,** 18x24 Steele, 30x16 Chambers, (Univee drive), Disintegrating Steele #2 - 24″x 12″ Chambers (1) 18″x16″, #2 - 30″x16″ Conical 22″x16″x32″ Smooth

**FEEDER RECIPROCATING PLATE,** 36″x8′ w/5 HP motor & Link Belt Reducer

**SCREENS,** 26x42 Crossley double lawn, New 3x5 Universal, 3x5 Tyler (wet), 3x10 Tyler double, type 38, 3x10 Cedar Rapids double, 5x12 Hewitt Robins, 2½ deck, 4′x20′ Trommel

**PUG MILLS,** 7′ Steele, 9′ Freese, 14′ Chambers, 12′ American double shaft, Chambers 15′ & Freese 15′ granulators

**BRICK MACHINES,** 9B Brewer, 470 International, #30 Bonnot, 18″ Auger Bonnot De Airing w/new spare parts

**CUTTERS, AUTOMATIC** J. C. Steele #18, Freese C20, & C25

**REPRESSES,** 2 Mold American 290, Bonnot Special w/motor drives

**ROTARY DRYERS,** 24″x20′, 36″x25′, 39″x21′, 44″x25′, 6′x40′

**CARS,** 24′ gauge, double deck, transfer cars, rail

**LAWLER COMPANY**
**Metuchen, N. J.** **Liberty 9-0245**

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FOR SALE—PAIR UNUSED MOLAR TIRES for nine foot Toronto Pan, 12 inch face, 42 inch I.D., 3 lug. Hydraulic-Press Brick Company, South Park, Ohio.

---

Complete line of Brick Making Machinery for sale.
No. 60 Steele Combined Deairing Machine, Model E Roller bearing twin-disc Clutch, complete with deairing mechanism.
No. 18 Steele Cutter, Model FC, delivery table.
Steele Even Clay Feeder, Model B.
Steele No. 4 Disintegrator, Model C.
Steele Smooth Roll Crusher, 18″, Model A.
Brewer Heavy Duty Conical Roll Crusher.
Steele No. 5 Hoisting Drum for pulling up cars.
Chase Single Deck Dryer Cars, 24″ gauge, 35″ wide, 6′11″ long, 8 channel iron slats.
MECO Propeller Kiln and Dryer Fans, 72″ - 60″ - 54″.
Kiln Cooling Fans, 48 and 24″, Motor Driven Propellers.
250 HP G. E. Motor, 440 Volt, 600 R.P.M. Chain Driven (Morse) line shaft, pulleys, belts, etc.
Motor Driven Dryer Car Puller, complete with shafting, clutches and cables for 20 tunnels.
Motor Driven Coal Conveyor or unloader, 20′ long.
200′ Clay Storage Shed Conveyor, 20″, motor driven.
30′ Clay Conveyor, 20″, motor driven.
110′ Waste Clay Conveyor, 16″, motor driven.
Rail 16 and 30#.
Towmotor, 4000# cap. with Bickerstaff fork. Practically new.
**Address inquiries to GRANT BRICK WORKS**
**Weldon, N. C.**

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Endless Chain Tray BRICK & TILE DRYER
SHALE PLANER self propelled 50′ boom
BRICK MACHINES: Bonnot comb. Steele 40 & 60. Chambers Royal & 10B. Amer 290, all deairing. Bonnot 21, Freese GCS & KC 10′ & 12′ PUGMILLS. #4 Disintegrator
DRY PRESSES: Boyd 4 Mold, Gates 2 Mold
MILLS: 24x32″, 6x8, 4½x16″ Ball. 5X22 Tube 5x14 Rod. 3630, 3642 4033 Hammer.
4, 5, 7 & 9 DRY PANS. Also WET PANS
CRUSHERS: 1020 Allis, 1836 CRJAW, 3018 4022 DBL ROLL
DRYERS: 5½x40, 6x40, 6x80, 10x101, 8x9x100
CUTTERS: Steele #18, Chambers 22, Amer 498B
Repres: Bonded Scale & Machine Co

**MID-CONTINENT EQUIPMENT CO. INC.**
**8321 Gannon St. Louis 24, Mo.** **Wydown 1-2826**

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30″ x 16″ Universal Crushing Rolls.
Chambers No. 2 Distintegrator & Steele No. 18.
Freese C-25 Automatic Cutter.
Steele 18 in. & 12 in. Smooth Roll Crushers.
1200′ new 42″ conveyor belt.
676 CFM Tuger Rand Air Compressor
Hammer Mills: Jeffrey 36 x 24 H & 36 x 36 B. Gruendler 2 XB 3, 5 & 6 XD Reversibles, Penn. SXT-11 and Williams 60-GA.
120 Side Dump Cars 1½, 2, 3 and 12 yards.
8 Gasoline Locomotives, 4, 6, 8 and 14 tons.
8 Diesel Locomotives, 6, 10, 25, 45, 65, 80 tons.
7—10,000, 15,000, 25,000 Gal. Steel Tanks.
10 Ton Plymouth Diesel Locomotive.
15, 25, 44 & 65 Ton G. E. Diesel Elec. Locomotives.
Steele Disintegrators, 2A, 4A and 6A.
Rotary Kilns: 4x42′, 8x45′, 6x8x60′, 9x80′,6x7x80′, 8x125′, 9x125′ 6x80′ & 10x106′.
Rotary Dryers: 3x26′, 4x20′, 5x35′,6x40′, 6x55′, 7x100′, 8x125′ and 9x125′.
25 Ton Amer. Diesel Locomotive Crane.
1,500 ft. 42″ wide BELT CONVEYORS complete in 200 to 900 ft. lengths.

**R. C. STANHOPE, INC.**
**60 E. 42nd St.** **New York 17, N. Y.**

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## FOR SALE

DRYER CARS—50 Chase 24″ double deck. Wheels, axles & bearings, 24″ gauge.
DRY PAN—1—Bonnot Standard 9′ with extra wearing parts.
DRY PRESS—1—Boyd SPECIAL with mixer.
BRICK MACHINES—1—Chambers Royal de-aired.
HAMMERMILLS—3—Jeffrey 24″ x 20″.
PUG MILLS—Riddell 12′ double shaft, Chambers 12′ double shaft.
CUTTERS—Steele 18B Left Hand with 2 extra reels.
ROLL CRUSHERS—2 Chambers Bros. 16″ x 30″ with motors.
SCREENS—1 unit, 2 screens 4′ x 5′ Hummers.
TRANSFER CAR—3 track 24″, 48″ Heavy duty. Motor power.
REPRESS—1 Bonnot Special. 1 Riddell 292.
FEEDER—1—36″ x 20′ Apron with reducer drive.
MIXERS—Simpson #2, Blystone.
BRICK PLANT—Complete with Lancaster 46 machine, cars, pallets, rail, disintegrator & etc.
PANS, BLOWERS & MOTORS
Complete plants bought and sold. Engineering Service.

**HERMAN A. HALL**
**Wyomissing, Pa.** **Tel.: Reading 24310**

---

## FOR SALE

ROTARY DRYERS: 4′6″ x 40′; 4′6″ x 32′; 42″ x 25′; 3′ x 24′; 3′ x 15′.
PEBBLE MILLS: 6′ x 8′; 5′ x 6′; 4′6″ x 12′; 38″ x 48″; 28″ x 42″.
PUG MILL: St. St. 7″ d x 3′9″ 1 overlapping chambers—Jkid.
MIXERS: Lancaster model SKG.
11—C. I. P. & F Filter Presses, 7″ x 7″, 24″ x 24″, 30″ x 30″, 36″ x 36″.

**PERRY EQUIPMENT CORP.**
**1432 N. Sixth Street**
**Philadelphia 22, Pa.**

---

FOR SALE — J. C. STEELE DISINTEGRATOR, No. 4. Good second hand condition. Kentucky Clay Mining Company, Mayfield, Ky.

---

## FOR SALE

BRICK MACHINES—All types
PUG MILLS—Single & Double Shaft
GRANULATOR—Freese P16, Chambers No. 51
AUTOMATIC CUTTERS—Steele 18, American 498, Freese C-20 & C-25, End Cutter, Drain Tile
HAND CUTTERS—Steele 50, Board Delivery

**BONNOT HEAVY DUTY DEAIRING MACHINE—EXCELLENT CONDITION**

DRY PRESS 4 MOULD—Boyd "Special"
DRY PANS & WET PANS
HAMMER MILLS—Jeffrey 20x24 & 8′ x 15′
SMOOTH ROLLS—Chambers 16x30, 18′x24″
CONICAL ROLLS—Brewer 32″, 22″, Chambers 32″
DISINTEGRATORS — Chambers 16″, Steele 12″, 18″
JAW CRUSHERS—6 x 12, 15 x 24, 20 x 4, 20 x 36, 30 x 36
PULVERIZERS—Williams Comet Dust Mill; Raymond Lab Size
ROTARY DRYERS & KILNS
DRY MIXERS—Lancaster EBG-3, EAG-3, SKG, Simpson 1½, 2, 3.
SCREENS—Hummer 3 x 5 & 4 x 5 Single, Selecto 3 x 6, Piano Wire 3 x 5, Slip Lawns
REPRESS 2-MOULD—American 292, BONNOT
CLAY FEEDERS—Disc 48″ & 60″, Steel Even
WAD MILL
HAND TILE PRESS
DRYER CARS—24″ gauge Single & Double Deck, Rack Cars—Also Transfers
TURNTABLES—72″
SIDE DUMP CARS—2 yd. 36″ gauge, 1 yd. 24″
PEBBLE MILLS—30 x 42″, 4 x 5′, 6 x 8′, Hardinge 7′ x 22″, 7′ x 48″
BALL MILLS—Hardinge 6′ x 22″, 6′ x 36″, 10′ x 48″, 2′ x 8″, 5′ x 21′ Tube Mill
STEEL PALLETS—10 x 24″, 10 x 41″, 14 x 30″
SLIP PUMPS—2 & 4 Cylinder
FILTER PRESSES—13, 32, 60, 70 Leaf
SAGGER PRESSES—22 Crossley with Dies
KILNS—Decorating, high Fire Glass, & Lehr

**ROBERT L. CLARE**
**PERTH AMBOY, N. J.** **Phone Hillcrest 2-0061**

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**WALTER C. STOLL & SONS**
**New and Used**
CLAY WORKING MACHINERY
**5028 Alhambra Ave., Los Angeles 32, Calif.**
CApitol 2-1141

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## FOR SALE PLANT

FOR SALE — DRAIN TILE PLANT, Ohio — Operating at full capacity, using surface clay. Gross over $100,000 with high net profit. Demand within 50 mile radius in excess of plant production. Known for high quality product. $40,000 will handle — balance at 5%. Owner wishes to retire. Address 12 XF, care of BRICK & CLAY RECORD.

---

FOR SALE — BRICK plant, in operating condition in southwest. Best shale deposit in state. Owner wishes to retire. Address 7-EG, care of BRICK & CLAY RECORD.

---

## MISCELLANEOUS

WANTED — NON-DEAIRING COMBINED BRICK MACHINE — Steele No. 18 cutter — Even flow feeder — Smooth roll crusher — Cable conveyors. Address 1-YD care of BRICK & CLAY RECORD.

# CLASSIFIED ADVERTISEMENTS

**KILNS, DRYERS**
**Complete Plant Design**
For
**Brick, Tile, Pipe, Refr.**
**Investigations — Reports**
**Clay Testing**
**T. W. GARVE**
**And Associates**
69 W. Weisheimer Rd.
Columbus 14, Ohio

For PROMPT DELIVERY on
POWER PRESS OUTFITS —
LINERS—PADS—REPAIRS
— SILICA MOULDS —
call on
**JOHNSON MACHINE CO.**
Box 669 Phone 5-9648
Clearfield, Pa.
*intricate shapes our specialty*

CAST YOUR OWN CAR TOPS
WITH **BRIXCRETE**
THE INLAND FIRE BRICK CO.
Cleveland 11, Ohio

WANTED TEXTURING MACHINE for Matt, Bark or other texture for face brick. Write Virginian Brick and Tile Co., Princeton, W. Va.

**RAILS**
Immediate shipments, all weights, with accessories. Also Turnouts & Storage Tanks.
STOCKS AT VARIOUS POINTS
W. H. DYER CO., INC.
2110-B Railway Exchange Bldg., St. Louis 1, Mo.

IMPRESSIVE EASY TO MAKE
BRICK DISPLAY PANELS
BRIK-STIK — sticks the bricks
BRIK-STIK — plus sand for the joints
MASEK GLUE CO., Cleveland 9, Ohio

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Located on
Coxe Lands near Freeland, Pa.
Easily Stripped Mined
Railroad within ½ Mile
**Analysis as follows:**

| | |
|---|---|
| Moisture at 105°C | .50% |
| **Analysis after drying at 105°C** | |
| Silica ($SiO_2$) | 62.31% |
| Alumina ($Al_2O_3$) | 23.26% |
| Iron Oxide ($Fe_2O_3$) | 1.87% |
| Titanium Oxide ($TiO_2$) | 1.00% |
| Calcium Oxide (CaO) | .20% |
| Magnesium Oxide (MgO) | .76% |
| Alkalies | 2.56% |
| Sulphur Trioxide ($SO_3$) | .03% |
| Loss on Ignition | 7.64% |
| P. C. E. | 20 (2820°F) |

May Contain Pyrophyllite

**Communicate with**
**COXE ESTATES, DRIFTON, PA.**
**TELEPHONE: FREELAND, PA. 400**
***For Inspection or Samples***

***MEMO . . .***

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To: Owners of American Machines

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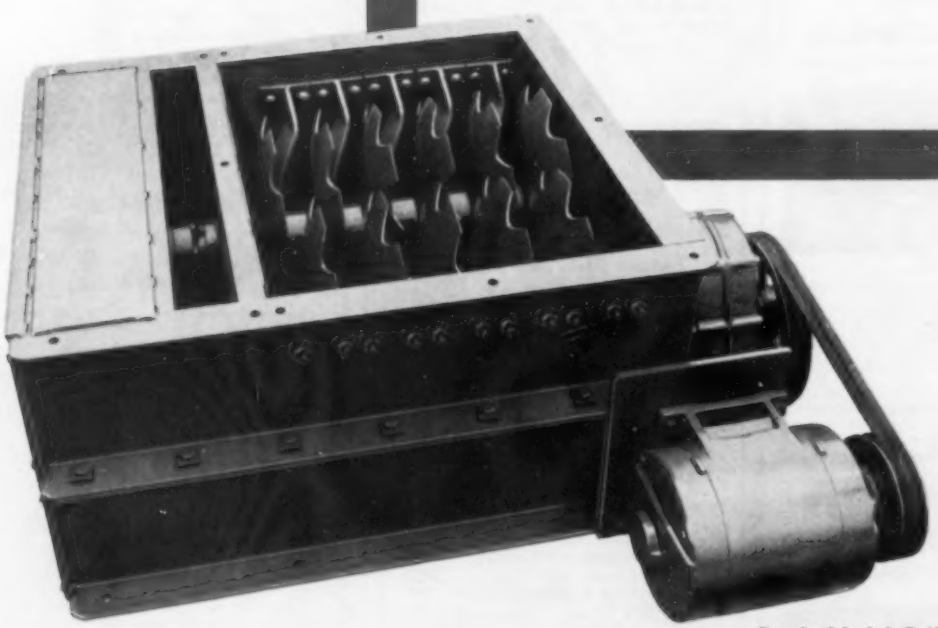
# Simplify your Green Waste Problems

A simple and efficient design of "waste chopper" to reduce green waste to minus two inches has been designed by J. C. Steele & Sons, Inc. It is intended to be located at the end of an off-bearing table or just above the primary pugmill of an extrusion machine set-up. Many clay plants have built these "choppers" for their own use with excellent results, but Steele believes this to be the first one offered commercially in its completed form. Production plans will depend on interest shown by clay plant operators.

Standard readily available 18-inch harrow discs and scrapers are used. A two-inch square hole is cut in each disc, and one scraper per disc prevents build-up and clogging. The 5 HP drive turns the geared shafts at approximately 70 and 53 RPM. Dimensions are 40 inches long by 26 inches wide by 20 inches overall height, while the actual opening for scrap is 23 inches in line with the shafts by 30½ inches wide.



Steele Model A "Waste Chopper"

Pacific Agent: Walter C. Stoll, 5028 Alhambra Ave., Los Angeles 32, Calif.

**J. C. Steele & Sons Statesville, N. C.**

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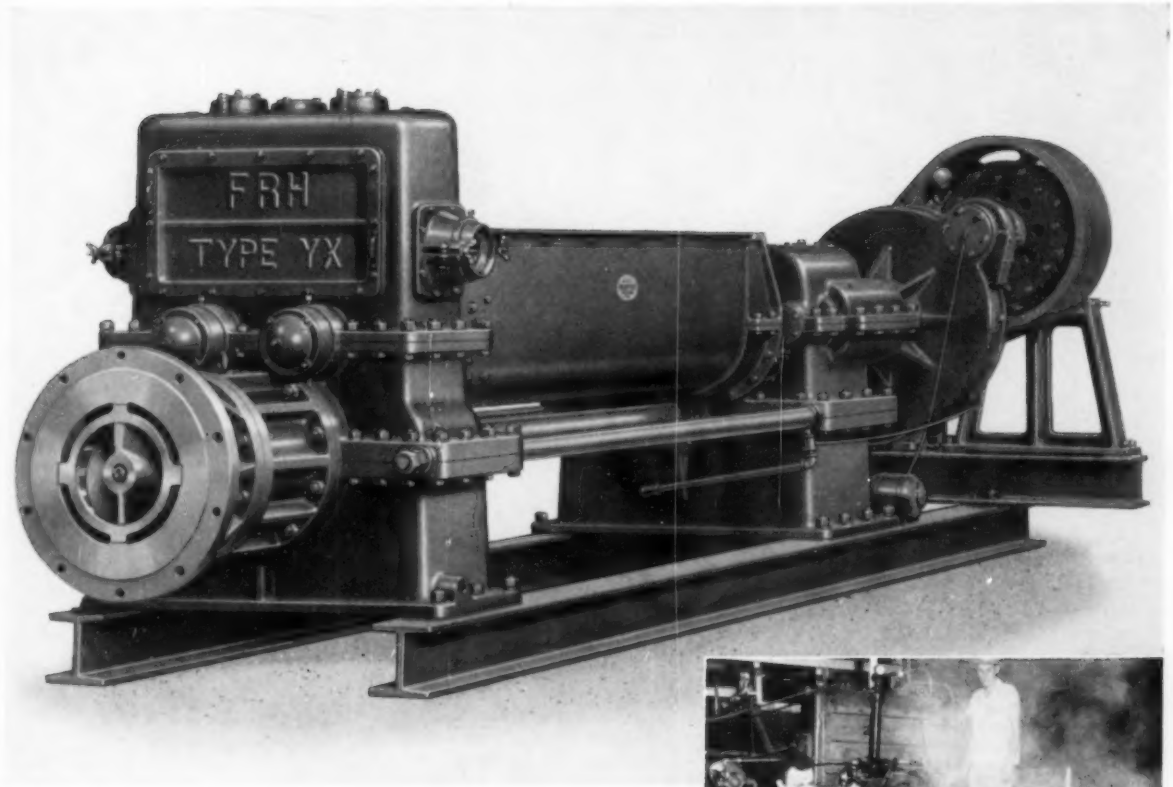
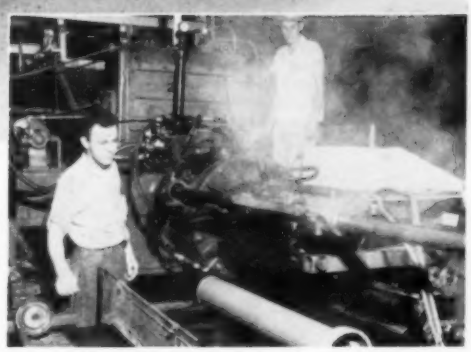


# *F-R-H Helps Automate Sewer Pipe Production*

*—for a leading sewer pipe manufacturer, the W. S. Dickey Clay Mfg. Co.*

When the need is for more modern methods of processing clay for ceramic products, you will find F-R-H machines among the first considered by alert manufacturers.

A good example of this is the plant-wide automation job done by W S Dickey Clay Mfg. Co. in Meridian, Mississippi. In the manufacture of their high quality vitrified clay sewer pipe, extrusion, forming, cutting, trimming — even trade marking and palletizing — are done mechanically.

Five F-R-H machines designed especially for extruding sewer pipe, are helping the W. S. Dickey plant to improve product quality and cut costs through automatic processing.

"Operating costs are substantially lower," reported Vice President A. C. Dauwalter, "and very little maintenance has been required on these F-R-H machines. The outstanding performance of seven F-R-H Pug Mills in our Pittsburg, Kansas plant — where over 6000 tons of sewer pipe, drain tile and flue lining are produced monthly — prompted our Meridian installation."

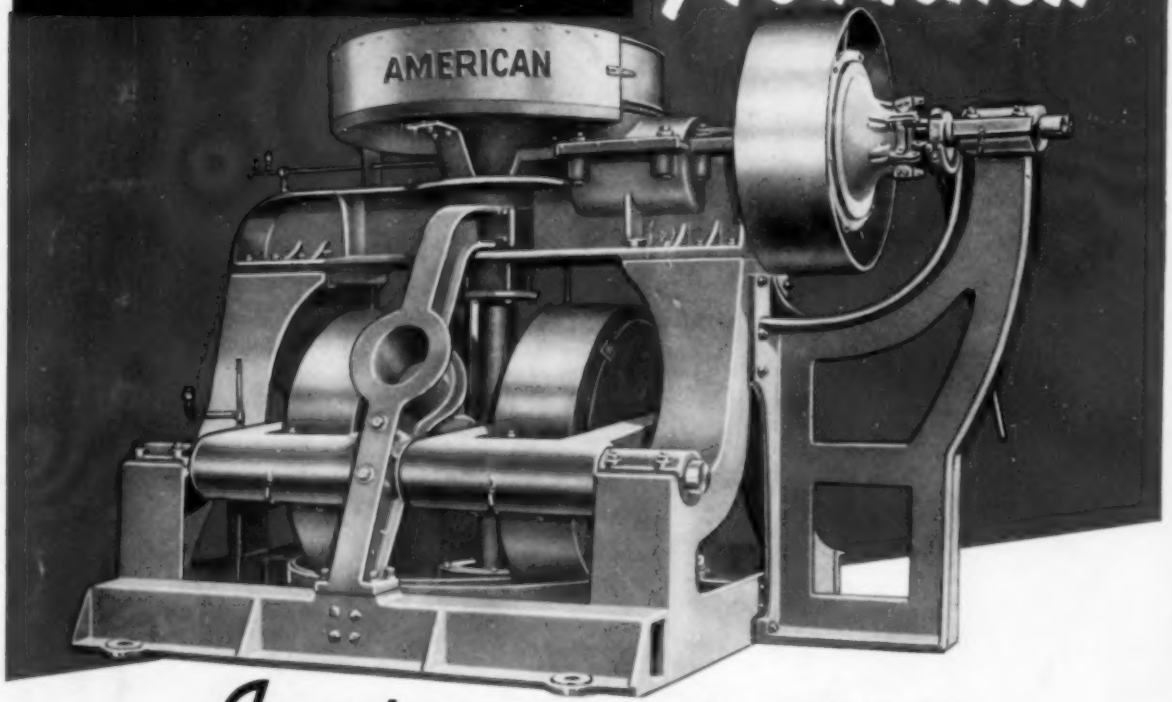
Get complete information on F-R-H ceramic machinery and find out how their efficient performance can improve your clay processing, too. A more detailed analysis will be furnished if you send a brief outline of your production needs to The Fate-Root-Heath Company, Dept. B-1, Plymouth, Ohio.

**F-R-H**

**CERAMIC MACHINERY**

**ALSO MANUFACTURERS OF PLYMOUTH LOCOMOTIVES**

# A TON A MINUTE *Production*




## *American* NO. 384 GRINDER

For big capacity grinding at low cost, experienced clay production men consistently choose the "American" No. 384 Grinder, capable of producing A TON A MINUTE capacity.

This grinder, with its big tonnage volume, requires only a minimum of plant space, low initial investment, less power consumption and performs efficiently and dependably with only a minimum of maintenance.

The "American" No. 384 Grinder will efficiently handle hard clay, shale and other similar material used in the manufacture of brick and other clay products. These materials are handled wet or dry, and there are no screen plates to clog and slow down production.

"American" offers a complete line of grinders. In this line are eight sizes to meet all varying plant requirements. Capacity of these grinders ranges from 15 to 80 tons per hour.

If you're considering the installation of real clay production equipment, choose "American" Clay Machinery. For a profitable, non-obligating consultation, write, wire or phone the "American Clay Specialist". Take advantage of his many years of experience.

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| Represses | Roofing Tile Machinery |
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and such accessory items as dies, screens, barrows, trucks, clay cars, winding drums.

## *American* CLAY MACHINERY

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